THE H&K GROUP
ENGINEERING
& ENVIRONMENTAL
Services Division

REMEDIAL INVESTIGATION REPORT
AND
RISK ASSESSMENT REPORT

LOCKHEED MARTIN CORPORATION

INFORMATION SYSTEMS & GLOBAL SOLUTIONS

VALLEY FORGE FACILITY

230 MALL BOULEVARD

KING OF PRUSSIA, MONTGOMERY COUNTY, PENNSYLVANIA

PREPARED BY:

THE H&K GROUP®

ENGINEERING AND ENVIRONMENTAL SERVICES DIVISION

2052 LUCON ROAD

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executive summary

This Remedial Investigation Report (RIR) and Risk Assessment Report summarizes the results of a groundwater characterization investigation (the site) at the Lockheed Martin Corporation Valley Forge Facility located at 230 Mall Boulevard in King of Prussia, Pennsylvania. The RIR has been triggered by soil-to-groundwater exceedances detected during soil remediation activities. The soil remediation at this site is addressed under a separate Notice of Intent to Remediate.

The groundwater investigation initiated in April, 2008, has identified tetrachloroethene (PCE) at concentrations that exceed the residential Statewide Health Standard (rSWHS) at the point of compliance. Other organic compounds that have been detected at the site have been at concentrations that are anticipated to attain a rSWHS. Therefore, Lockheed Martin intends to pursue a relief of liability under Act 2 using a Site Specific Standard for PCE and applying a Statewide Health Standard to other organic compounds detected in site groundwater samples. The inorganic analytes barium was detected above rSWHS in a pattern that is indicative of naturally occurring background concentrations and is anticipated to meet the background standard under Act 2. Aquifer characterization has identified upper and lower aquifers at the site that are separated by a confining zone that sustains a strong downward gradient between the aquifers. The confining zone is compromised by erosion and/or faulting at the north, and downgradient, edge of the site allowing vertical migration of the plume into the lower aquifer. The upper aquifer is unconfined and exists entirely within the sandstone and siltstone of the Stockton Formation. The lower aquifer exists in both the Stockton Formation and the dolomite of the Ledger Formation. The Ledger Formation exhibits karst characteristics.

Results from groundwater samples collected from site monitoring wells, completed at multiple depths across the site, indicate a well defined plume source area, however extensive investigation described in this report has been unable to definitively identify a release mechanism in the source area. The scenario of small quantities of PCE (less than a quart) periodically poured on the ground surface near a former make-up water above ground storage tank decades ago has been indicated by employee interviews and soil sampling. However, the observed groundwater plume is offset to the verified soil contamination, and the volume of groundwater contamination appears inconsistent with the accumulated minor release scenario.

The groundwater plume exists northwest from the source in the upper aquifer, where PCE concentrations of 1,000 to 4,200 micrograms per liter (µg/L) are observed, toward the point of compliance where only the lower aquifer is encountered and the upper aquifer has been faulted out. PCE concentrations in the deep aquifer at the point of compliance are typically 100 to 200 µg/L, with deep aquifer concentrations decreasing the further south (upgradient) the monitored location is from the point of compliance.

A vapor intrusion investigation consisting of sampling of indoor air, sub-slab vapor, and soil gas was conducted for buildings adjacent to the source area. The investigation results indicated no indoor air quality samples exceeded non-residential Medium Specific Concentrations for groundwater-related constituents. Sub-slab samples at some locations beneath Building T900 contained PCE concentrations that exceeded non-residential Medium Specific Concentrations for soil gas. Indoor air quality remedial measure options are currently under evaluation.

A particle tracking groundwater model based on data gathered from multiple aquifer testing methods, including slug tests and long-term pumping tests, and calibrated to site and regional well head data, identifies the Schuylkill River and, to a lesser extent, the Upper Merion Reservoir as the likely discharge locations for groundwater from the site. Though it is less likely, the model also identifies the Cabot Well and Radisson public water supplies as potential discharge locations under certain alternate scenarios. Using simple dilution calculations with the model under a variety of aquifer characteristic scenarios, a weighted average of the scenarios indicates a PCE site specific standard of 300 µg/L at the point of compliance (monitoring well WT-MW-8R) would be protective of the Cabot Well and other potential exposure pathways. The 300 µg/L site specific standard for PCE is supported by the risk assessment conducted for current conditions at this site.

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ACRONYM AND ABBREVIATION LIST

16N	Short-Normal Resistivity
64N	Long-Normal Resistivity
AGI	Advanced Geosciences Inc.
amsl	above mean sea level
AquaFusion	AquaFusion, Inc.
ARM	absolute residual mean
AST	above ground storage tank
ATV	acoustic televiewer logging
BAFI	bio-available ferric iron
BAM	bio-available manganese
bgs	below grade surface
BSOC	Backup Security Operations Center
btex	benzene, toluene, ethylbenzene, xylene
CC	chain of custody
cis-1,2-DCE	cis-1,2-dichloroethene
CMEOH	methanol extract
COCs	contaminants of concern
Ct	bulk rock sample
CTW	contaminant transport window
DHH	down hole hammer
DMP	dimethyl phthalate
DPT	direct push drilling techniques
EDN	Earth Data Northeast
EE/CA	Engineering Evaluation and Cost Analysis
EESD	Engineering and Environmental Services Division
Enviroscan	Enviroscan, Inc.
ESA	Environmental Site Assessment
EESH	Lockheed Martin's Energy, Environment, Safety & Health
foc	fraction of organic carbon
ft/ft	foot/foot
GIS	geographical information system
gpm	gallons per minute
GWV	Groundwater Vistas
HSA	hollow stem auger
HVAC	heating ventilation and air conditioning
IAQ	indoor air quality
IS&GS	Lockheed Martin Information Systems and Global Solutions
K	conductivity
Kd	soil-water coefficient
KOC	organic carbon portioning coefficient

Kx	horizontal conductivity
Kz	vertical conductivity
LDPE	low density polyethylene
LMC	Lockheed Martin Corporation
MAE	microwave assisted extraction
MGD	million gallons per day
MODFLOW	USGS MODFLOW2000
Mrock	mass of the crushed rock
MSC	Medium Specific Concentration
MSC IAQ	Medium Specific Concentration for Indoor Air
MSCSG	Medium Specific Concentration for Soil Gas
MVS	Mining Visualization System
NIR	Notice of Intent to Remediate
OI	Oxide Iron
PADEP	Pennsylvania Department of Environmental Protection
Pb	bulk density
Pb(dry)	dry rock bulk density
Pb(wet)	wet rock bulk density
PCBs	polychlorinated biphenyls
PCE	tetrachloroethene
PHCs	petroleum hydrocarbons
PID	photoionization detector
ppm	parts per million
psi	pounds per square inch
PVC	polyvinyl chloride
PWS	public water supply
PZ	property zones
QA/QC	quality assurance/quality control
RC	rock coring
rSWHS	residential Statewide Health Standard(s)
S	storativity/storage coefficient
SOP	Standard Operating Procedure
SP	spontaneous potential
SWLs	static water levels
T	transmissivity
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
Tetra Tech	Tetra Tech, Incorporated
TOC	total organic carbon
UMR	Upper Merion Reservoir

USEPA	United States Environmental Protection Agency
VES	Vertical Electrical Sounding
Vf	flow velocity
VMEOH	volume of methanol
VOA	volatile organic analysis
VOCs	volatile organic compounds

1.0 INTRODUCTION

The purpose of this report is to present remedial investigation methods and data in accordance with Title 25, §250.408 in pursuit of attainment of a Site Specific Standard. This report has been prepared by The H&K Group®, Engineering and Environmental Services Division (EESD) on behalf of Lockheed Martin Corporation (Lockheed Martin). Lockheed Martin retained EESD and Tetra Tech, Incorporated (Tetra Tech) to conduct site characterization activities related to a groundwater plume (the site) at the Lockheed Martin Valley Forge Facility located at 230 Mall Boulevard, King of Prussia, Montgomery County, Pennsylvania. Site characterization activities were performed in accordance with the Pennsylvania Department of Environmental Protection (PADEP) *Administration of Land Recycling Program*, Title 25, Chapter 250. This report concerns the groundwater media at the site. The soil investigation and remediation at this site has been addressed under a separate Notice of Intent to Remediate (NIR) and is summarized here under **Sections 2.2.1** and **2.2.2**.

Site investigations were initiated by Lockheed Martin, in December 2006, upon the observation of petroleum impacted soil beneath an above ground fire suppression water storage tank at the time the tank was removed in December 2006. The petroleum laden soil had been placed beneath the above ground storage tank (AST) as part of the tank design and construction as confirmed by the design drawings. Laboratory analytical results from soil samples collected from excavated soil and the soil/bedrock interface indicated that the presence of tetrachloroethene (PCE) exceeded the soil-to-groundwater numerical value. The soil exceedance resulted in the installation of a single monitoring well to assess groundwater impacts at the source area. Results of the initial groundwater assessment led to the broader investigation of PCE-impacted site groundwater reported here. The investigation lead to an initial scenario of small "coffee can" volumes of PCE dumped on soil adjacent to the former AST several decades ago. This scenario was based on employee interviews describing procedures used to clean small parts by immersion in PCE contained in a coffee can.

Characterization of site groundwater impacts included investigation of the horizontal and vertical extent of the PCE plume; quarterly groundwater monitoring and sampling; measurement of aquifer characteristics using borehole geophysics, pneumatic slug tests, water level measurements using pressure transducers, and a colloidal borescope survey. Potential exposure pathways were investigated through a regional well search and an investigation of the potential for vapor intrusion to indoor air.

The scope of this report includes data obtained regarding groundwater impacts in the vicinity and downgradient of the AST associated release. The monitoring wells installed by EESD that are related to the AST associated release are: WT-MW-1, WT-MW-2, WT-MW-3, WT-MW-4, WT-MW-5, WT-MW-5D, WT-MW-6, WT-MW-7, WT-MW-8R, WT-MW-9Ss, WT-MW-9Sd, WT-MW-9Dss, WT-MW-9Dls, WT-MW-10Ss, WT-MW-10Sd, WT-MW-10Ds, WT-MW-10Dd, WT-MW-11, and WT-MW-12. More recently, monitoring wells WT-MW-15D, WT-MW-16SR, WT-MW-16D, WT-MW-17, and WT-MW-18 were installed by Tetra Tech to monitor site groundwater. Monitoring wells installed as part of an associated vapor intrusion investigation (WT-VI-201 and WT-VI-202) and an environmental site assessment (ESA-MW-104s, ESA-MW-104m, and ESA-MW-104d) were also included in the PCE groundwater plume investigation, which is the subject of this report, due to their proximity to the suspected source area and observed laboratory analytical results for these locations. Additional wells were installed for the Environmental Site Assessment (ESA) conducted by EESD as part of a broader site assessment investigation. The monitoring wells that were part of the ESA, which appear in select figures and tables, but are not relevant to the groundwater plume investigation discussion in this report, include ESA-MW-101s, ESA-MW-101d, ESA-MW-102s, ESA-MW-102d, ESA-MW-103s and ESA-MW-103d.

2.0 BACKGROUND INFORMATION

Characteristics of the local geography, site history, geology, and hydrogeology for the site and surrounding areas are described in this section.

2.1 Site Location and Description

The Lockheed Martin facility is located at 230 Mall Boulevard, King of Prussia, Montgomery County, Pennsylvania and has been an industrial property since the facility's construction in the early 1960s. Prior to that, the area was agricultural land. The site location is shown on a portion of the Valley Forge U.S.G.S. 7½ minute topographic quadrangle in **Figure 2-1**. The Lockheed Martin site is bounded by the Pennsylvania Turnpike to the northwest, Goddard Boulevard to the northeast, Mall Boulevard to the southeast, and the Schuylkill Expressway to the southwest. The land use surrounding the site is mainly industrial/commercial with the King of Prussia Mall located adjacent to the Lockheed Martin property to the east/southeast.

The topography across the Lockheed Martin property ranges in elevation from approximately 150 to 250 feet above mean sea level (amsl), with the ground surface elevation at the site of the former AST being approximately 220 feet amsl.

2.2 Site History

The following subsections describe the activities that lead to the discovery of the site release, the site soil characterization, interim remedial measures of soil removal, and the initiation of a subsequent groundwater investigation.

2.2.1 and Interim Remedial Measures

On December 4, 2006, a 200,000-gallon unregulated AST was removed from the Lockheed Martin facility. The former location of this AST is shown on **Figure 2-2**. The tank was used to store back-up water for the on-site fire suppression system. After removal of the tank, Lockheed Martin's Energy, Environment, Safety & Health (EESH) personnel collected one composite soil sample for analysis of polychlorinated biphenyls (PCBs) and petroleum hydrocarbons (PHCs). The sample was collected from soil inside a concrete containment ring that surrounded the AST. No PCBs were detected in the sample, but PHCs were detected at a concentration of 51,300 milligrams per kilogram (mg/kg). On December 18, 2006, materials located beneath the former tank that were visibly oil-stained were excavated using a Bobcat skid steer, and staged on-site pending analytical testing for off-site disposal.

Each phase of work is summarized in the following paragraphs.

December 18, 2006 - Six soil samples were collected within a concrete ring wall that surrounded the former AST for waste disposal purposes. Sample results indicated that PCE was present at concentrations above the Toxicity Characteristic Leaching Procedure (TCLP) regulatory threshold of 0.7 milligrams per liter (mg/l).

January 12, 2007 - Two samples of standing water that had collected within the concrete ring surrounding the former AST were obtained. The samples were collected for disposal purposes. Test results indicated that lead and PCE were present at levels above residential Pennsylvania Statewide Health Standards (rSWHS).

January 17, 2007 - Eight soil samples were collected from the base of the former excavation area. PCE concentrations in five of the eight samples exceeded Pennsylvania soil to groundwater numerical values.

January 30, 2007 – A soil boring program was conducted to determine the vertical and horizontal extent of soil impact. PCE was detected at levels above Pennsylvania rSWHS in soils below the former AST area to depths of 4.0 feet below ground surface (bgs).

April 9 to 11, 2007 – Excavation of 172.5 tons of soil was performed inside the concrete ring to a depth of approximately 5 feet bgs, until weathered bedrock was encountered. Twelve post-excavation soil samples were collected within the excavated area. The analytical results of the post-excavation samples collected indicated that three of the samples exceeded the Pennsylvania rSWHS for soil-to-groundwater standard of 0.5 mg/kg for PCE.

A more detailed description of the site soil remediation, sampling, and analytical results is provided in the *Report of Results, Former 200,000 Gallon Water Tank Containment Area*, dated May 27, 2008, prepared by EESD and available upon request.

2.2.2 -Excavation - Delineation Soil Boring Program

On April 22, 2008, four soil borings were drilled to delineate the lateral and vertical extent of PCE impacted soils detected at former post-excavation sample location PE-SW-3. Previous sampling at this location indicated a concentration of 0.91 mg/kg at a depth interval of approximately 5.5 to 6.0 feet below grade level. The soil borings drilled were labeled as DSB-1, DSB-2, DSB-3 and DSB-4.

Drilling and sampling was performed using hollow stem auger (HSA) drilling procedures and split-spoon sampling. Soil samples were collected in each borehole location at the depth intervals of 5.5 to 6.0 feet and 9.0 to 9.5 feet bgs. Drilling refusal was encountered with the split-spoon samplers at a depth of 9.5 feet. No water was encountered in any of the four soil boring locations.

The soil sampling results documented that the prior remediation activities (soil removal by excavation) in the former AST area were effective in removing soils contaminated with volatile organic compounds (VOCs). Furthermore, the lateral and vertical extent of soils potentially impacted by PCE have been adequately delineated to demonstrate attainment at concentrations that are "non-detect" for PCE within the confines of the former AST containment area. **Figure 2-2** depicts the soil boring sample locations DSB-1 through DSB-4.

A NIR for site soil under the Pennsylvania Act 2, Land Recycling Program and a Final Report for site soil, titled *Building 600 Soils Characterization and Remediation*, prepared by Lockheed Martin, were submitted to PADEP on September 24, 2010.

On April 23, 2008, a deep soil boring was drilled where PCE was detected at its highest concentrations in soils within the area of the AST. This deep soil boring was later converted to a monitoring well. The location of this soil boring/monitoring well, designated as WT-MW-1, is shown on **Figure 2-3.**

2.2.3 Boring and Installation Program

On April 23, 2008, a deep soil boring (DSB-1) was drilled to split spoon refusal (9.5 feet bgs) and was found to have the highest concentration of PCE among the soil boring samples analyzed. Drilling was advanced to a depth of 9.5 feet bgs using split-spoon sampling and

HSA drilling techniques. Auger refusal was encountered at 9.5 feet bgs. That soil boring was later converted to monitoring well WT-MW-1 (**Figure 2-3**) with a total depth of 144 feet bgs. The drilling from 9.5 to 144 feet bgs was completed using down hole hammer (DHH) drilling techniques during this period of the investigation.

During the months of April and May 2009, five additional monitoring wells (WT-MW-2 through WT-MW-6) were installed at the site, as shown on **Figures 2-3**. The locations and depths of these wells were selected based on results reported in the December 8, 2008 *Borehole Geophysics and Groundwater Sampling Report for WT-MW-1,* which is available upon request. All monitoring wells were installed using a combination of HSA and DHH drilling techniques. In addition, monitoring wells WT-MW-4 and WT-MW-6 were installed using the wireline rock coring (RC) drilling technique. The wells were finished with flush-mounted protective casings. The top of surface casings were located approximately one foot below ground surface and fitted with metal vaults labeled with the well number.

Subsequent investigations included the deepening of monitoring well WT-MW-1 and the installation of monitoring wells WT-MW-5D, WT-MW-7, WT-MW-8R and WT-MW-9. Based on the data gathered from the new wells, additional tasks were completed to further characterize the site. The additional tasks included the completion of additional groundwater monitoring wells WT-MW-9D, WT-MW-10S, WT-MW-10D, and WT-MW-11, and soil vapor related monitoring wells WT-VI-201 and WT-VI-202. A seven foot deep monitoring well, WT-MW-12, was installed using a post hole digger to monitor groundwater adjacent to a surface seep north of Goddard Boulevard. Most recently, monitoring wells WT-MW-15D, WT-MW-16SR, WT-MW-16D, WT-MW-17, and WT-MW-18 were installed by Tetra Tech between October 11, 2011 and October 11, 2012.

The borehole/well construction drilling logs for all locations are provided in **Appendix A.**

2.2.4 Quality Sampling Program

Up to three different methods of groundwater sampling in any single monitoring well/boring have occurred over the history of the project. During drilling, temporary inflatable straddle packers were used to perform “hydrogeologic (or hydro) testing” to assess groundwater quality of vertically isolated (typically 20-foot) intervals on many of the monitoring well borings.

Further testing of borehole intervals isolated with straddle packers was conducted after completion of drilling and borehole geophysics to ascertain the suitability of those intervals for final well construction (referred to as straddle packer testing). Upon completion of borings WT-MW-1, WT-MW-2, and WT-MW-5, semi-permanent inflatable straddle packers were installed to minimize vertical migration of contaminants and to isolate selected intervals during groundwater sampling events.

Groundwater characterization samples were collected at irregular intervals during the construction phase of monitoring wells WT-MW-1 through WT-MW-6. Sampling for screened and open hole monitoring wells was conducted with a submersible pump following the purging of one well volume plus stabilization of field-measured parameters. The analytical results for these early characterization samples are summarized in **Table 2-1**. Quarterly groundwater sampling began in October 2009 and a summary of the quarterly groundwater analytical results is presented in **Table 2-2.**

From borehole completion until as late as the first quarter 2011, the semi-permanent packer assemblages were moved vertically from one depth to another (reconfigured) to isolate targeted intervals prior to purging and sample collection. These three wells where semi-permanent straddle packers were used were all converted to Westbay System® completions, utilizing permanently installed packers, by the second quarter of 2011. Westbay System® completions isolate selected intervals from the rest of the borehole with the permanent installation of inflatable packers. Several intervals are created in each borehole, with groundwater sampling analytical results providing a vertical concentration profile. Groundwater in the intervals is isolated from the atmosphere and reaches equilibrium with the surrounding formation groundwater. Groundwater samples are collected by sending a decontaminated, partially-evacuated sample bottle down a central conductor pipe where it accesses groundwater at the target interval via a sampling port.

2.3 Geology and Hydrology

Socolow and others (1980) describe the surface bedrock beneath the site as consisting of sandstone, siltstone, and shale of the Upper Triassic Period Stockton Formation underlain by carbonates of the Cambrian Period Ledger Formation.

2.3.1 Geology

The site is located within the Triassic Lowland Section of the Piedmont Physiographic Province. The geology underlying the site is the Upper Triassic Period Stockton Formation of the Newark Basin, based on mapping by Glaeser (1966). Thick, poorly defined upward fining cycles were deposited by large, perennial, meandering rivers flowing off of uplifted crystalline rocks to the south. The rocks contain channels, ripple marks, mud cracks, crossbeds, lenses, pinch-and-swell structures, and minor burrows. These rocks have an east-west strike and a dip of approximately 15 degrees to the north. The Stockton Formation is defined as a bedrock formation that includes alluvial fans, fluvial and lacustrine sandstones, fluvial and lacustrine mudstones, and siltstones (Tuner-Peterson and Smoot, 1985). The Stockton Formation is composed primarily of a fine to coarse grained arkosic sandstone, arkosic conglomerates, interbedded red shales, and siltstone.

The Stockton Formation has been subdivided into three members: the lower arkosic member characterized by an abundance of coarse-grained arkosic sandstone and arkosic conglomerate; the middle arkosic member characterized by the abundance of fine to medium grained arkosic sandstone; and the upper shale member characterized by the predominance of shale and siltstone.

The site is underlain by the lower member of the Stockton Formation. This geological description correlates well with the details logged for site monitoring wells.

The Regional Geologic Map for the Lockheed Martin site area is presented in **Figure 2-4.** The site is situated on a small, thin, extended segment of the Stockton Formation. The occurrence of this segment is believed to be associated with the normal faults that are shown in the surrounding areas to the north, northeast and northwest of the site as depicted on **Figure 2-4**.

The thickness of the Stockton Formation is estimated to be approximately 550 feet in Phoenixville, Pennsylvania, approximately seven to ten miles due west of the site. The thickness of the Stockton Formation bedrock unit near the site is not well known because there have been few geological studies performed in the region. Maximum thickness of the Stockton Formation measured in boreholes at the site is 512 feet measured at the monitoring well WT-MW-15D location.

Overall, the geological literature documenting the Stockton Formation indicates that the total thickness of the Stockton Formation, including all three members, is estimated to be approximately 4,000 feet. The Stockton Formation rests unconformably on the paleosurface of Paleozoic and Precambrian Period rocks.

The Paleozoic and Precambrian Period units that exist along geological contacts in the surrounding area are the Ordovician Period Conestoga Formation (est. 500 to 800 feet thick), the Cambrian Ordovician Period Elbrook Formation (est. 800 feet thick), and the Cambrian Period Ledger Formation (est. 1,000 feet thick). The Ledger Formation underlies the Stockton Formation and contacts the Stockton Formation approximately 500 to 1,000 feet north, northeast and northwest of the site. The Conestoga Formation underlies and contacts the Stockton Formation approximately 1,000 to 1,500 feet south, southeast and southwest of the site. Brief descriptions of these three geological formations in the area follow.

<u>Ledger Formation</u>: Consists of Cambrian Period dolomite and siliceous dolomite. The dolomite is granular and gray to bluish-gray color.

<u>Elbrook Formation</u>: Consists of Cambrian-Ordovician Period limestone. The limestone is fine-grained, light gray to cream color and thinly bedded.

<u>Conestoga Formation</u>: Consists of Ordovician Period limestone. The impure limestone is thinly bedded in the upper portions of the formation. It is dark, graphitic, and phyllitic in the middle portions. It is granular, thick bedded, and dark gray in color in the lower portions of the formation.

The dolomite and limestone formations are karstic in nature and notorious for the development of sinkholes and voids within the bedrock. The Pennsylvania Geological Survey has mapped the locations of a number of known sinkholes caused by the underlying karst formations in the area. A large number of sinkholes are depicted as being within 2500 feet to the north, northwest, south and southeast of the site (**Figure 2-4**). The closest mapped sinkholes exist approximately 500 feet south of the site and three sinkholes have been mapped 2,000 feet to the southeast within the property limits of the King of Prussia Mall.

2.3.2 Geology

Continuous real-time monitoring of lithology by examination of drill cuttings and rock cores was conducted by registered Pennsylvania Professional Geologists. Particular attention was paid to the samples to detect any transition from sandstone to dolomite. Examination and testing of drill cuttings and cores occurred on samples collected every five feet, at a minimum. The geologist recorded all pertinent drilling information in the field logbook and/or on field data forms. A summary of the lithologic descriptions recorded is provided in **Table 2-3**. More detailed descriptions are provided on the Lithologic Logs presented in **Appendix A**.

The geology of the Stockton Formation observed in site borings consists primarily of red to gray arkosic sandstone, siltstone and mudstone beds with minor amounts of quartz cobble conglomerates and trace amounts of calcareous pods and carbonaceous sand and shale. Fractures are found throughout the sandstone with size and frequency of the fractures often increasing close to what has been mapped as a down to the south normal fault that strikes east to west (Socolow et al. (1980)).

The maximum thickness of 512 feet for the Stockton Formation observed in site borings was measured in monitoring well boring WT-MW-15D. It is uncertain if the base of the Stockton Formation in this boring represents the formation contact or the fault contact. Monitoring well WT-MW-15D is located where the northeast dipping formation contact is thought to intersect the south dipping fault.

Dolomite has been observed in 12 borings, with the depth to the top of the dolomite listed in **Table 2-4.** The carbonate limestone and dolomite formations located in the vicinity of the site are known to be karstic in nature with sinkholes, solution-widened fractures, and voids. Voids were noted in two borings, WT-MW-8R and WT-MW-11. The void observed in WT-MW-8R extended from a depth of 97 feet bgs to below the total depth of 121 feet bgs. The void is water-filled from 97 to 107 feet bgs, and clay-filled from 107 feet bgs to total depth. The void observed in WT-MW-11 extended from 498 to 508 feet bgs and is clay filled throughout.

Static water levels (SWLs) observed in monitoring wells in the vicinity of the former water tank indicate a confining layer exists within the Stockton Formation which separates an upper water bearing zone from a lower water bearing zone. Water levels above the confining zone are typically in the 45 feet bgs range while those below the confining zone are approximately 130 feet bgs. This separation is also supported by differing contaminant concentrations in the two zones and the confining zone. Highest concentrations are typically found in the shallow water bearing zone with lower concentrations in the lower zone and lowest concentrations within the confining layer. The approximate elevations of the confining layer, based on water levels and concentrations observed, are listed in **Table 2-5**.

The lower water bearing zone appears to have a direct connection to the groundwater within the dolomite as evidenced by the similar water level elevations within the sandstone and the dolomite. This indicates that the fault separating the sandstone and dolomite formations is not a barrier to groundwater flow between the formations, and does not appear to represent a hindrance to groundwater flow toward the north from the site. The historic water levels measured at the site are presented in **Table 2-6**.

With the exception of monitoring wells WT-MW-17 and ESA-MW-105D, the sandstone/dolomite contacts observed in monitoring wells WT-MW-1, WT-MW-5D, WT-MW-7, WT-MW-8, WT-MW-8R, WT-MW-9D, and WT-MW-11 (**Table 2-4**) are assumed to represent a fault contact related to the down-to-the-south, south dipping normal fault whose surface expression roughly parallels the Pennsylvania Turnpike in the vicinity of the site. The fault has been mapped from the available site data and is calculated from the map to have a dip of approximately 54 degrees. A fault plane elevation contour map is included with this report as **Figure 2-5.**

Lithology observed in monitoring wells WT-MW-7, WT-MW-11, and WT-MW-15D identified highly fractured zones at 465 to 476 feet bgs in WT-MW-7, 430 to 490 feet bgs in WT-MW-11, and 460 to 527 feet bgs in WT-MW-15D, all beginning just above the presumed fault indicated by the sandstone/dolomite contact. These fracture zones produced more water [greater than 200 gallons per minute (gpm)] than the drill rig could clear from the boring using compressed air. The depth and nature of the fracturing resulted in compressed air being "stored" in the formation which caused groundwater to continue flowing from the boring for up to an hour after the rig was shut down. A direct connection of this highly transmissive zone was observed between WT-MW-7 and WT-MW-11 when drilling at WT-MW-11 caused air to surge from below the water table in WT-MW-7.

2.3.3 Hydrology

The Lockheed Martin property exists within a portion of the Delaware River Basin watershed that is located on a divide between minor streams within the larger basin. The property exists in portions of the Trout Creek and Crow Creek watersheds, with the former water tank site located entirely within the Trout Creek watershed. These watersheds are reported in Pennsylvania Code, Title 25, Chapter 93 as Warm Water Fishes. The Schuylkill River is located 1.3 miles northwest of the site. The Schuylkill River meanders and flows from northwest to the southeast toward its point of confluence with the Delaware River, located 18 miles southeast of the site.

3.0 SITE CHARACTERIZATION METHODS AND RESULTS

Extensive characterization of this site includes surface geophysics; borehole geophysics; vapor intrusion assessment; and aquifer tests that include slug test, short and long-term pumping tests, colloidal borescope assessment, and long-term water level elevation recording. In an effort to identify and characterize a source area, soil vapor investigations and sanitary sewer investigations were also conducted. These efforts are described further in the subsections below.

3.1 Surface Geophysics

EESD contracted with Enviroscan, Inc. (Enviroscan) of Malvern, Pennsylvania to perform a site survey using surface geophysics. The purpose of the surface geophysics investigation was to obtain an estimate of the depth and orientation of the sandstone/dolomite interface and location of a suspected fault prior to drilling additional monitoring wells following completion of monitoring wells WT-MW-1 through WT-MW-6.

On November 16, 2009, Enviroscan, Inc. performed a surface geophysical investigation to determine the gross lithology (i.e., transition between overlying sandstone and underlying dolomite) to depths of 500 feet below ground. To provide estimates of the gross stratigraphy below the site and to obtain data on the location of the upthrown and downthrown sides of the fault, Enviroscan completed a modified Vertical Electrical Sounding (VES) survey.

Data were collected along seven VES profiles (**see Figure 3-1**). Along each profile, Enviroscan employed an Advanced Geosciences Inc. (AGI) SuperSting R8 earth resistivity meter and a Schlumberger electrode array to perform a VES. The locations of VES stations were surveyed using a Topcon GMs-110 GPS system.

The VES data were analyzed using EarthImager 1D^{tm} by AGI. EarthImager 1D^{tm} uses an iterative mathematical inversion to produce a least-squares best fitting model of the subsurface electrical layering without requiring assumption of the number of electrical layers or top or bottom layer resistivities.

The VES electrical models generally display a sharp change in resistivity around 40 to 250 feet bgs. Enviroscan's final analysis of the VES data, and comparison with drilling and geophysical logs did not provide a consistent explanation for the offset in resistivity at the depths that are observed in the VES models. The initial interpretation that the offset represented the sandstone/dolomite contact was disproven by subsequent on-site drilling. One possible alternative interpretation is that the offset is due to lateral changes in resistivity. However, this explanation is also unsatisfactory since the sense of offset is consistent (except for Profile 4) despite the varying locations and orientations of the electrode arrays. The surface geophysics investigation is detailed in the Enviroscan, Inc. *Final Report of Lithology Profiling Survey*, dated December 7, 2009, is included as **Appendix B**.

3.2 Monitoring Well and Piezometer Installation

3.2.1 Well Drilling

Monitoring well installation was initiated with the conversion of a deep soil boring in the footprint of the former AST into monitoring well WT-MW-1 on April 23, 2008. During the months of April and May 2009, five monitoring wells (WT-MW-2 through WT-MW-6) were installed at the site. During the months of April to June, 2010, 11 monitoring well borings (WT-MW-5D, WT-MW-7, WT-MW-8R, WT-MW-9 WT-MW-9D, WT-MW-10S, WT-MW-10D, WT-MW-11, WT-MW-12, WT-VI-201 and WT-VI-202) were drilled at the site and monitoring well WT-MW-1 was deepened. Monitoring well boring ESA-MW-104 was completed on September 27, 2011 as part of an unrelated ESA, but was included in groundwater monitoring for this site due to its proximity to the suspected source area. Six additional monitoring wells (WT-MW-15S, WT-MW-15D, WT-MW-16S, WT-MW-16D, WT-MW-17, and WT-MW-18) were installed between October 11, 2011 and October 11, 2012. Monitoring wells WT-MW-13 and WT-MW-14 in the series were proposed but not drilled. The locations of all monitoring wells completed are shown on **Figures 2-3a** and **2-3b**. All borings were drilled by Eichelbergers, with the exception of the initial WT-MW-1 boring which was completed by C.S. Garber, and monitoring well WT-MW-12 which was hand augered by EESD. Each boring was developed shortly after completion of the drilling or upon installation of the Westbay system monitoring wells using standard development techniques utilizing drill rig compressed air or submersible pumps. A summary of the total depth drilled for each bore hole, the screened intervals, and observed groundwater production zones is listed on **Table 3-1** and graphical Borehole/Well Construction drilling logs are provided in **Appendix A**. A detailed description of the well drilling methods and results for each monitoring well follows.

Continuous real-time monitoring of borehole lithology by examination of drill cuttings was conducted by Pennsylvania-registered Professional Geologists. Particular attention was paid to the cuttings to detect any transition from sandstone to dolomite. Examination and testing of drill cuttings occurred on samples collected every five feet, at a minimum. The geologist recorded all pertinent drilling information in the field logbook and/or on field data forms. A summary of the lithologic descriptions recorded is provided in **Table 2-3**. More detailed descriptions are provided on the Lithologic Logs presented in **Appendix A.**

<u>WT-MW-1</u>

The first monitoring well to be installed, WT-MW-1, was initially drilled by C. S. Garber and Sons, Inc., to a depth 144 feet bgs at the location where the highest PCE concentrations were detected in the soil of the former water storage tank containment area. HSA drilling methods were used from the ground surface to nine feet bgs. Drilling from nine to 144 feet bgs was completed using DHH drilling methods. The boring was then converted to a monitoring well.

In 2010, WT-MW-1 was deepened by Eichelbergers from the original 144 feet bgs to a final depth of 510 feet bgs. RC drilling methods were used from 144 to 155 feet bgs. The configuration of the borehole resulted in excessive drill rod chatter which severely affected the ability to recover acceptable cores. Therefore, the remainder of the borehole to a total depth of 510 feet bgs was accomplished with DHH drilling methods. The boring was deepened from 144 feet bgs in the Stockton Formation sandstone to 510 feet bgs, which is 20 feet into the Ledger Formation dolomite. To prevent vertical migration of the contaminants within the monitoring well a combination of inflatable straddle packers and K-packers, which operate by wedging a series of flexible rubber rings against the borehole sidewall, were installed whenever active drilling was not taking place.

The dolomite interval was plugged with cement/bentonite grout to reduce the chance of vertical contamination into the Ledger Formation, resulting in a total completed depth of 486 feet bgs for the monitoring well. The final well configuration was constructed with the installation of a Westbay System® consisting of eight individual monitoring zones.

WT-MW-2

Monitoring well WT-MW-2 was drilled by Eichelbergers. The total depth of 213 feet for this monitoring well was pre-determined based on the orientation of fractures measured in monitoring well WT-MW-1. The depth and location northeast of WT-MW-1 were selected because they were expected to best portray the nature and extent of fractures in site bedrock. Monitoring well WT-MW-2 was installed using a combination of HSA, DHH, and RC drilling techniques. The monitoring well was completed as a flush-mounted well with the top of surface casing located approximately one foot below ground surface. The top of the surface casing was fitted with a metal cover and padlock. The monitoring well was then labeled and further secured inside of a heavy duty metal vault labeled with the monitoring well number.

A twelve-inch diameter borehole was drilled using HSA from 0 to 10 feet bgs, a ten-inch diameter borehole was drilled using DHH from 10 to 45 feet bgs and a 3.82-inch diameter(HQ) core hole was drilled using RC from 45 to 213 feet bgs.

In WT-MW-2, the top of bedrock was encountered at 10 feet bgs with the top of competent bedrock interpreted to be at 38 feet bgs. A 6.66-inch outer steel casing was installed and permanently grouted into competent bedrock from the ground surface to a depth of 44 feet bgs. The well was constructed with the installation of a Westbay System® consisting of five individual monitoring zones.

WT-MW-3

WT-MW-3 was drilled using combined HSA and DHH drilling techniques. A twelve inch diameter borehole was drilled using HSA from 0 to 10 feet bgs, a 10-inch diameter borehole was drilled using DHH from 10 to 45 feet bgs and a 6 inch diameter bore hole was drilled using DHH from 45 to 265 feet bgs. The total depth of 265 feet bgs for this monitoring well was pre-determined based on the orientation of fractures measured in monitoring well WT-

MW-1. The depth and location southeast of WT-MW-1 were selected because they were expected to best portray the nature and extent of fractures in site bedrock.

In WT-MW-3, the top of bedrock was encountered at 10 feet bgs with the top of competent bedrock interpreted to be at 35 feet bgs. A 6.66-inch outer steel casing was installed and permanently grouted into competent bedrock from the ground surface to a depth of 45 feet bgs. The well was constructed with the installation of a single 2-inch diameter PVC screen and riser.

WT-MW-4

Groundwater monitoring well WT-MW-4 was drilled using combined HSA, DHH, and RC drilling techniques. A twelve inch diameter borehole was drilled using HSA from 0 to 12 feet bgs, a 10-inch diameter borehole was drilled using DHH from 12 to 51 feet bgs and a 4 inch diameter bore hole was drilled using RC from 51 to 171 feet bgs. The total depth of 171 feet for this monitoring well was pre-determined based on the orientation of fractures measured in monitoring well WT-MW-1. The depth and location south-southeast of WT-MW-1 were selected because they were expected to best portray the nature and extent of fractures in site bedrock.

In WT-MW-4, the top of bedrock was encountered at 12 feet bgs with the top of competent bedrock interpreted to be at 39 feet bgs. A 6.66-inch outer steel casing was installed and permanently grouted into competent bedrock from the ground surface to a depth of 45 feet bgs. The well was constructed with the installation of a single 2-inch diameter PVC pre-pack screen and riser.

WT-MW-5

Groundwater monitoring well WT-MW-5 was drilled using combined HSA and DHH drilling techniques. A twelve inch diameter borehole was drilled using HSA from 0 to 6 feet bgs, a 10-inch diameter borehole was drilled using DHH from 6 to 45 feet bgs and a 6 diameter bore hole was drilled using DHH from 45 to 262 feet bgs. The total depth of 262 feet for this monitoring well was pre-determined based on the orientation of fractures measured in monitoring well WT-MW-1. The location northeast of WT-MW-1 was selected because it was expected to best portray background conditions in site bedrock.

In WT-MW-5, the top of bedrock was encountered at 6 feet bgs with the top of competent bedrock interpreted to be at 35 feet bgs. A 6.66-inch outer steel casing was installed and permanently grouted into competent bedrock from the ground surface to a depth of 45 feet bgs. The well was constructed with the installation of a Westbay System® consisting of five individual monitoring zones.

WT-MW-5D

A monitoring well (WT-MW-5D) was installed approximately 15 feet west of WT-MW-5 to monitor groundwater quality downgradient from the source area within the Stockton Formation immediately above the sandstone/dolomite interface and in the upper 30 feet of the Ledger Formation. The contact between the Stockton Formation sandstone and Ledger Formation dolomite was encountered at 290 feet bgs. The WT-MW-5D borehole was cased to 262 feet bgs (the total depth of WT-MW-5) and advanced to a completed depth of 320 feet bgs. The well was constructed with the installation of a nested pair of two 2-inch diameter PVC screens and risers.

WT-MW-6

Groundwater monitoring well WT-MW-6 was drilled using combined HSA, DHH and RC drilling techniques. A 12-inch diameter borehole was drilled using HSA from 0 to 10 feet bgs, a ten-inch diameter borehole was drilled using DHH from 10 to 22 feet bgs and a four-inch diameter bore hole was drilled using RC techniques from 22 to 272 feet bgs. The total depth of 272 feet for this well was pre-determined based on the orientation of fractures measured in monitoring well WT-MW-1

In WT-MW-6, the top of bedrock was encountered at 10 feet bgs with the top of competent bedrock interpreted to be at 13 feet bgs. A 6.66-inch outer steel casing was installed and permanently grouted into competent bedrock from the ground surface to a depth of 22 feet bgs. The well was constructed as an open hole well.

WT-MW-7

The monitoring well WT-MW-7 test boring was advanced using down hole hammer and roller bit DHH techniques, within the Stockton Formation sandstone to a total depth of 500 feet bgs. A 6.66-inch diameter steel surface casing was installed to a depth of 22 feet bgs.

Drilling was discontinued at 500 feet bgs because of the very high formation yield and the water handling issues that were incurred. Large open fractures identified between approximately 350 feet bgs and the bottom of the borehole produced an estimated groundwater yield in excess of 200 gpm. The well continued to expel air and water for over one hour following shut down of the drilling rig, suggesting that compressed air introduced during the DHH drilling process was temporarily stored within open bedrock fractures.

Air rotary drilling techniques using a roller bit were required to complete the borehole from 470 to 500 feet bgs to compensate for the effects of large volumes of water and the back pressure produced by the weight of the water in the borehole that rendered down hole hammer drilling methods ineffective.

Borehole instability caused by extensive fracturing of the sandstone bedrock and the high volume inflow of formation groundwater into the borehole resulted in the collapse and accumulation of approximately ten feet of bedrock fragments and sediment from the borehole sidewalls at the bottom of the test boring. As a consequence, the effective test boring/monitoring well depth is approximately 490 feet.

The typical well development using rig air upon completion of the boring did not occur at monitoring well WT-MW-7 because of the instability of the borehole. The well was constructed with the installation of a Westbay System® consisting of nine individual monitoring zones. Development of each zone was conducted upon installation of the Westbay System® packers, with development considered complete when a minimum of one interval volume was removed and three consistent field parameter measurements were obtained over five minute intervals.

WT-MW-8

Borehole WT-MW-8 was drilled to a depth of 26 feet bgs, along the northern property boundary. It was known that the location selected was close to a mapped fault and dolomite was expected to be very close to the ground surface. The intent of selecting this location was to sample first groundwater within the Stockton Formation sandstone (and siltstone) overlying the fault, and to sample the top 30 feet of the underlying Ledger Formation dolomite bedrock. After completion of groundwater sample collection, it was proposed that the dolomite unit would be grout-sealed to the sandstone/dolomite interface and continued hydrogeologic testing would be performed on the saturated zone(s) of sandstone unit.

The Ledger Formation dolomite was encountered at 26 feet bgs; however groundwater was not detected within the borehole. Since groundwater was not encountered, the borehole was subsequently abandoned on May 5, 2010 in accordance with the PADEP Groundwater Monitoring Guidance Manual.

WT-MW-8R

WT-MW-8R was drilled as replacement well to the abandoned WT-MW-8. WT-MW-8R is located approximately 70 feet to the south (down dip direction along the fault) of the WT-MW-8 location, where the sandstone thickness was expected to be greater and a higher likelihood existed for encountering saturated conditions above the fault represented by the sandstone/dolomite interface.

The borehole was advanced to approximately 64 feet bgs through the sandstone unit, and four feet into dolomite, which was first observed at 60 feet bgs. Groundwater was not detected. A six-inch diameter surface casing was installed to 64 feet, and the borehole was advanced an additional 33 feet. First significant groundwater was observed at 96 feet bgs, and a large void was encountered at 97 feet bgs. A borehole video showed the upper 10 feet (97 to 107 feet bgs) of the void was water-filled, with clay present below 107 feet bgs. Drill rods were used to probe the depth of the void and were extended to a depth of 121 feet bgs, but the void bottom was not encountered. The geologist on site considered adding drill pipe to probe deeper than 121 feet; however this presented an unnecessary risk to the boring and the drill tooling. Therefore, the total void depth was not probed and remains unknown.

The boring was completed in the Ledger Formation dolomite as an open hole monitoring well with a 2-inch diameter polyvinyl chloride (PVC) casing to 97 feet bgs. The monitoring well is open to the void, which extends from 97 feet bgs to beyond 121 feet bgs. The boring was not developed due to the presence of the water-filled void.

WT-MW-9

The monitoring well WT-MW-9 location was selected to further define the western edge of the groundwater plume. The monitoring well WT-MW-9 test boring was advanced within the Stockton Formation sandstone to 300 feet bgs using DHH methods,. The six-inch diameter borehole was completed as a nested well pair with both two-inch diameter PVC screens installed in the Stockton Formation sandstone.

WT-MW-9D

Monitoring well WT-MW-9D boring was drilled as a deep nested well pair associated with the shallower boring containing the monitoring well WT-MW-9 nested pair. The eight-inch diameter boring was completed with two two-inch diameter PVC screens and risers. Monitoring well WT-MW-9D was installed to further delineate the vertical extent of contaminants in site groundwater and to identify the depth to the Ledger Formation dolomite.

The monitoring well WT-MW-9D test boring was advanced using DHH methods to 535 feet bgs, 29 feet into dolomite. WT-MW-10S

Test boring WT-MW-10S was drilled using DHH methods to total depth of 200 feet bgs within the Stockton Formation sandstone. The boring was drilled and cased to 30 feet bgs and was then advanced as an eight-inch diameter hole to 200 feet bgs. A bentonite seal was installed at the bottom of the well to yield a final completed depth of 122 feet bgs. The bentonite seal was installed to properly seal the unmonitored deeper part of the boring and to prevent communication between monitoring wells installed in boring WT-MW-10S and the monitoring wells installed in nearby boring WT-WM-10D. Weathered bedrock was encountered at approximately 10.0 feet bgs. The well was constructed with the installation of a nested pair of two 2-inch diameter PVC screens and risers.

WT-MW-10D

Test boring WT-MW-10D was drilled to a total depth of 486 feet bgs using DHH methods. The contact between the Stockton Formation sandstone and Ledger Formation dolomite was encountered at 483 feet bgs. The boring was drilled and cased to 40 feet bgs then advanced as an eight-inch diameter hole to 486 feet bgs. A bentonite seal was installed at the bottom of the well to yield a final completed depth of 403 feet bgs to properly seal off the unmonitored lower portion of the boring against potential vertical migration of groundwater through the borehole. The well was constructed with the installation of a nested pair of two 2-inch diameter PVC screens and risers.

WT-MW-11

Test boring WT-MW-11 was drilled using DHH methods to a total depth of 508 feet bgs. The contact between the Stockton Formation sandstone and Ledger Formation dolomite was encountered at 490 feet bgs. The Stockton/Ledger contact at WT-MW-11 is presumed to represent the fault. The boring was drilled and cased to 38 feet bgs and was then advanced as a six-inch diameter hole to 508 feet bgs. A bentonite seal was installed at the bottom of the well to properly seal off the unmonitored lower portion of the boring against potential vertical migration of groundwater through the borehole, yielding a final completed depth of 400 feet bgs.

Bedrock was encountered during drilling at approximately 10 feet bgs. The sandstone bedrock was competent from 26 to approximately 410 feet bgs and fracture yield was low throughout with approximately 2 gpm total well yield. Large open fractures were identified between approximately 410 feet bgs and the bottom of the borehole that produced an estimated groundwater yield in excess of 200 gpm. The sandstone/dolomite interface was encountered at 490 feet bgs. A partially clay-filled void was observed from 498 to total depth at 508 feet bgs.

Borehole instability caused by extensive fracturing of the sandstone bedrock and the high volume inflow of formation groundwater into the borehole resulted in the collapse of bedrock fragments and sediment from the borehole sidewalls and a partial borehole obstruction at approximately 465 feet bgs. The roughness of the open borehole precluded the proper seating and inflation of the packers below 410 feet bgs, which ultimately resulted in the sealing of the bottom of the boring with bentonite from 400 to 508 feet bgs. The well was constructed with the installation of a Westbay System® consisting of five individual monitoring zones.

<u>WT-MW-12</u>

Monitoring well WT-MW-12 was installed to provide a monitoring point targeting the shallow aquifer groundwater immediately upgradient of the seep observed on the south bank of the western storm water basin north of Goddard Boulevard. The steep banks of the storm water basin made drilling rig access impractical, so a three-inch diameter hand auger was used to create a borehole to seven feet bgs. A two-inch diameter PVC monitoring well screened from three to seven feet bgs was completed January 4, 2011.

<u>WT-MW-15S</u>

The WT-MW-15S boring was drilled to a total depth of 220 feet. A 10-inch diameter borehole was completed to 30 feet bgs to install a six-inch diameter steel surface casing to that depth. The remaining borehole was continuously cored in five-foot increments from 30 to 220 feet bgs for detailed lithologic descriptions and to provide material for matrix diffusion analyses, which is discussed in **Section 3.11**. After coring, the borehole was reamed to a six-inch diameter using the DHH method. The boring was completed as an open borehole to serve as the extraction well for an aquifer pumping test, discussed below in **Section 3.4.4.**

Two temporary packers were installed at the depths of approximately 50 and 105 feet to reduce the potential for vertical contaminant transfer through the borehole. After the aquifer pumping test conducted in April 2013, and described here in **Section 3.4.4**, the well was decommissioned on July 13, 2013 by grouting the entire boring with bentonite and cutting the casing below ground surface.

<u>WT-MW-15D</u>

The WT-MW-15D boring was to a total depth of 527 feet. A 10-inch diameter borehole was drilled to 220 feet bgs using DHH methods. Six-inch diameter steel casing was installed to 220 feet bgs. Continuous coring was performed from 220 feet bgs to a total depth of 527 feet bgs in 5-foot intervals. The core was collected for detailed lithologic description and to provide material for subsequent matrix diffusion analyses. The Ledger Formation dolomite was first encountered within a highly fractured zone at a depth of 512 feet bgs, resulting in poor core recovery. After coring, the borehole was reamed to a six-inch diameter using the DHH drilling methods to provide for a planned Westbay System® installation. Temporary five-inch diameter spin casing was used to keep the borehole open to the total depth of 527 feet while a two-inch diameter stainless steel monitoring well was installed with a 10-foot section of 20-slot well screen. The well screen was installed between 517 and 527 feet bgs within the Ledger Formation dolomite.

WT-MW-16S

The WT-MW-16S boring was drilled to a total depth of 139 feet. A 10-inch diameter borehole was drilled into the top of bedrock using DHH drilling methods and a six-inch diameter steel surface casing was set to a depth of 22 feet. Continuous coring was performed from 22 feet to a depth of 139 feet in 5-foot intervals for detailed lithologic description and to provide material for matrix diffusion analyses.

Drilling could not progress past 139 feet bgs because the borehole had significantly deviated from vertical. The borehole was sealed and abandoned on December 13, 2011 by grouting the entire borehole and cutting the casing below ground surface.

WT-MW-16SR

Borehole WT-MW-16SR was drilled as a replacement boring for borehole WT-MW-16S. A 10-inch diameter borehole was drilled using DHH methods and six-inch diameter steel surface casing was set to a depth of 29 feet bgs. A six-inch diameter borehole was drilled using DHH methods to a depth of 220 feet bgs.

The final well configuration was constructed with the installation of a Westbay System® consisting of three individual monitored zones.

WT-MW-16D

The WT-MW-16D boring was drilled to a total depth of 359 feet. A 10-inch diameter borehole was drilled using DHH methods and six-inch steel surface casing was installed to a depth of 220 feet bgs. Continuous coring was performed in five-foot intervals between 220 and 359 feet bgs. The core was collected for detailed lithologic description and to provide material for matrix diffusion analyses. The Ledger Formation dolomite was first encountered at a depth of 340 feet bgs. However, the subsequent geophysical log results indicate that the top of dolomite occurs at a slightly higher depth of 330 feet bgs and is coincident with a large fracture that is probably at the fault plane. After coring, the borehole was reamed to a six-inch diameter using DHH drilling methods.

The final well configuration was constructed with the installation of a Westbay System® consisting of three individual monitored zones.

WT-MW-17

The WT-MW-17 boring was drilled 10-inches in diameter borehole using DHH methods to a depth of 250 feet bgs. While the borehole was still open and prior to the installment of permanent casing, a vertical series of low-flow groundwater samples were obtained from the depths of 190 feet, 205 feet, 220 feet, 235 feet, and 250 feet and analyzed for VOCs. The purpose of this sampling was to analyze an untested vertical section of the Stockton Formation that would subsequently fall into a gap between the bottom of the shallow well at this location and the top of the deeper well that was being installed. The analytical results showed all samples were non-detect for VOCs so completion progressed with the installation of six-inch steel surface casing to a depth of 250 feet bgs.

The boring continued beyond 250 feet bgs using six-inch diameter DHH drilling methods to a depth of 522 feet. The Stockton Formation displayed a very low yield, and water had to be added to the borehole throughout most of the drilled section until a series of fractures were encountered beginning at a depth of 480 feet bgs. The Ledger Formation dolomite was first encountered at a depth of 500 feet bgs.

The final well configuration was constructed with the installation of a Westbay System® consisting of four individual monitored zones.

WT-MW-18

The WT-MW-18 boring was drilled between October 9 and October 11, 2012. A 12-inch diameter borehole was drilled using DHH methods and 10-inch steel surface casing was installed to a depth of 54 feet bgs. A 10-inch diameter borehole was drilled using DHH methods and six-inch steel surface casing was installed to a depth of 100 feet bgs. Fill material used for the construction of the parking lot in which the boring is located was encountered to a depth of 37 feet bgs. A six-inch diameter borehole was drilled using DHH methods from 100 feet bgs to a total depth of 300 feet bgs. The Ledger Formation dolomite was first encountered at a depth of 190 feet bgs.

The final well configuration was constructed with the installation of a Westbay System® consisting of six individual monitored zones.

WT-VI-201

Monitoring well boring WT-VI-201 was completed on September 7, 2010. The monitoring well was constructed as a water table monitoring well installed as part of the vapor intrusion investigation. The purpose of the monitoring well was to provide a groundwater quality sampling point that tests the groundwater in the vicinity of Building 100-T9000 to assess how the groundwater concentrations might relate to sub-slab vapor concentrations.

Monitoring well WT-VI-201 was completed as a six-inch diameter open hole well to a total depth of 70 feet bgs with 6.66-inch diameter steel surface casings installed to 30 feet bgs.

WT-VI-202

Monitoring well boring WT-VI-202 was completed on September 9, 2010. The monitoring well was constructed as a water table monitoring well installed as part of the vapor intrusion investigation. The purpose of the monitoring well was to provide a groundwater quality sampling point that tests the groundwater in the vicinity of Building 100-T9000 to assess how the groundwater concentrations might relate to sub-slab vapor concentrations.

Monitoring well WT-VI-202 was completed as a six-inch diameter open hole well to a total depth of 90 feet bgs with 6.66-inch diameter steel surface casings installed to 38 feet bgs.

ESA-MW-104

Monitoring well boring ESA-MW-104 was completed on September 26 to 27, 2011 as part of a broader Environmental Site Assessment unrelated to the former water tank investigation. However, with the presence of similar chlorinated compounds and proximity of the boring to the groundwater plume associated with the former water tank investigation, this well has been incorporated into the groundwater sampling program.

The boring was completed in the interbedded sandstones, siltstones and shales of the Stockton Formation. Nominal 8-inch casing was installed in the 12-inch diameter borehole and was seated at approximately 19-foot bgs. Below the casing, the borehole was advanced as an 8-inch diameter hole to the final depth of 200 feet bgs. The borehole was completed as a nested trio of two-inch diameter PVC monitoring well screens and risers.

3.2.2 Geophysics

Upon the completion of all borings except WT-MW-8, WT-MW-12, WT-VI-201, and WT-VI-201, borehole geophysical surveys were conducted to measure and assess lithologic properties. The geophysical survey was conducted on the original 0 to 144 foot bgs section of monitoring well WT-MW-1 by AquaFusion, Inc. of Lewisberry, Pennsylvania (AquaFusion). All subsequent borehole geophysics investigations were conducted by Earth Data Northeast (EDN).

The objectives of the borehole geophysical surveys were to identify rock characteristics (porosity, etc.), lithology, vertical flow rates, borehole condition, and existing subsurface features, such as faults and fractures in the bedrock aquifer system that might serve as preferential flow paths for groundwater. Location, orientation, size and interconnectedness of the fractures affect the migration of targeted VOCs in the groundwater at the site. The suite of geophysical logs included the following:

- Borehole Video
- Single Point Resistivity
- Lateral Resistivity

- Short-Normal (16N) Resistivity
- Long-Normal (64N) Resistivity
- Natural Gamma Radiation
- Spontaneous Potential (SP)
- Fluid Resistivity
- Fluid Temperature
- Delta Temperature
- Caliper Logging
- Electromagnetic Flow Meter
- Acoustic Televiewer (ATV) Logging
- Deviation Survey

The borehole video color camera allowed for the down-hole or side-view examination of well casing, screened intervals in screened wells, and formational fractures in open hole rock wells.

The caliper log was used to identify fractures and fracture widths along the sidewalls of each borehole. The caliper logging system was a three-arm caliper pulse tool with a measurement range capability of two to 24 inches in diameter. The tool was coupled to a digital acquisition system, which recorded the average borehole or well diameter.

The natural gamma and electrical logging system utilized a natural gamma pulse, single-point resistivity, normal resistivity (16 and 64-inch), and spontaneous potential tool coupled to a digital acquisition system. The gamma and electric logs produced lithologic information and water quality data in open boreholes only. The resistivity test (except for fluid resistivity), the natural gamma test, and SP provide data relating to stratigraphic changes in the boreholes.

The fluid temperature and conductivity logging system utilized a combination fluid temperature and conductivity pulse tool coupled to a digital acquisition system. This system measured and digitally recorded simultaneously both the temperature of the borehole water in degrees Celsius and the fluid conductivity of the borehole water in microsiemens per centimeter. The fluid temperature, fluid resistivity and electromagnetic flow meter tests identified zones of higher hydraulic conductivity and where groundwater flow was entering or leaving the borehole.

The heat pulse flowmeter used was a high resolution device for measuring vertical fluid movement within the borehole. Detectable vertical flow measurements ranged from 0.328 to 9.8 feet per minute.

The ATV produced an oriented visual image of the borehole through high resolution sound waves. The televiewer digitized the information collected at a rate of 256 measurements per 0.02 feet. This high resolution data allowed for an analysis of fracture dip and strike. The ATV test was used to identify fractures, bedding planes, and determine the dip and dip direction of these features in the boreholes.

During separate phases of the investigation, AquaFusion, Inc. and EDN interpreted the data they from their respective borehole geophysics investigations of monitoring well WT-MW-1 and documented their findings in separate reports. The reports were submitted to EESD and Lockheed Martin’s King of Prussia project team for technical review and comparison. The borehole geophysical reports were instrumental in determining the optimal placement of screened intervals and Westbay System® packer configurations. Copies of the AquaFusion and EDN borehole geophysics reports are included in **Appendix C**.

3.3 Straddle Packer Testing

Temporary packer-interval testing was performed at monitoring wells WT-MW-1, WT-MW-2, WT-MW-3, WT-MW-4, WT-MW-5, WT-MW-6, WT-MW-7, WT-MW-9, WT-MW-10S, WT-MW-10D, WT-MW-11, WT-MW-16SR, and ESA-MW-104. The straddle packer zones, listed in **Table 3-2**, were determined by analyzing the results of the test drilling, lithologic logs, borehole geophysics results and hydrogeologic testing results. Field activities included the temporary installation and deployment of straddle packers within the open borehole to isolate discrete water-bearing zones within the sandstone and dolomite formations to perform slug testing, pump testing, and groundwater analytical testing.

The results for hydrogeologic testing and borehole geophysical logging were evaluated to obtain additional hydrogeologic information and to identify candidate target intervals for straddle packer testing. Straddle packer testing results were used to select zones for Westbay System® or screened interval groundwater monitoring.

Straddle packer testing tasks, in order of occurrence, were:

Straddle Packer Placement

The straddle packer tooling and pressure transducers (placed above, between, and below the packers) were lowered into the well bore with the inflatable rubber packers appropriately spaced to span one discrete candidate interval. The spacing varied, and was dependant on existing borehole conditions. The packers were then inflated with nitrogen to isolate the interval.

Slug Testing

Slug testing was completed at each interval following straddle packer placement and inflation to determine a qualitative field-estimate for a minimum pumping rate to be used for the pumping test. A falling head test was performed by adding one gallon of deionized water into the straddle packer conductor pipe. The introduced water subsequently entered the isolated interval between the upper and lower packer through perforations in the conductor pipe between the packers. Pressure transducer data were collected throughout the combined slug testing, pumping test, and analytical testing effort.

Pumping Test

Upon completion of each slug test, a submersible pump or 2-inch diameter Grundfos pump was used to purge a minimum of one volume of standing water within the packer tooling from higher yielding intervals, or until a stable pumping water level was achieved from lower producing intervals, in preparation for analytical testing. The pressure transducer data collected during the well purge were used to calculate the specific capacity, transmissivity, and potential well yield for each interval.

Due to the relatively short duration of the pumping cycles during straddle packer testing, the results from the calculations reflect conditions close to the well and may not be representative of the larger extent of the aquifer.

Analytical Testing

Analytical testing was performed at each packer test interval location following completion of the interval purge, as determined by the stabilization of groundwater field screening parameters. One fixed laboratory sample was collected from each interval to determine the vertical distribution of contaminants as it relates to deciding on the ultimate total depth of the boring. Laboratory analysis was performed by Accutest Laboratories, Inc. of Dayton, New Jersey, for full EPA method 8260B VOC analysis (including Freon 11 and Freon 113).

3.3.1 -Permanent Packer Configurations

Prior to installing the Westbay System® packer configurations as described above in WT-MW-1, WT-MW-2 and WT-MW-5, semi-permanent packer configurations were installed as an interim step to enable zoned groundwater sampling, pending installation of permanent Westbay System® packer assemblies.

3.4 Aquifer Testing

Aquifer characterization testing at the site included pneumatic slug testing, colloidal borescope testing, monitored natural attenuation parameter sampling, and long-term pumping tests. Summaries of the methods and findings from these tests are presented in the following sections.

3.4.1 Slug Testing

Pneumatic slug testing was performed between March 16 and March 28, 2011 to determine hydraulic conductivity values and better understand the bedrock fracture network interconnections between monitoring wells within the study area.

Pneumatic slug testing was performed utilizing a 2-inch diameter manifold at the wellhead. This diameter was selected to match the 2-inch diameter PVC casing of nine of the wells to be tested and the diameter of the straddle packer assembly lift pipe for testing in the remaining three wells. The slug testing of intervals within monitoring wells WT-MW-1, WT-MW-5 and WT-MW-6 required the use of an assembled straddle packer string in conjunction with the pressure manifold. The straddle packer system was used to isolate those portions of the open-hole well selected for slug testing.

Pneumatic slug testing involves the near-instantaneous alteration of the SWLs and measurement of the subsequent return of the water level to a static condition. The water level is depressed using compressed gas introduced into a well interval isolated below a packer or between two packers. For the tests, pressurized nitrogen gas was introduced above the SWL via the attached manifold or, in the case of the packer-isolated bedrock intervals, above the water level within the lift pipe that supports the packer string.

A 15 pounds per square inch (psi) vented pressure transducer was submerged in the water column within the riser or lift pipe and connected directly to a data logger at the surface via a continuous read cable. The In-Situ Level TROLL 700 transducer was programmed to record "fast linear" measurements at a rate of four readings per second.

During each slug test, all wells, except ESA-MW-101, ESA-MW-102, ESA-MW-103, ESA-MW-104, ESA-MW-105, WT-MW-12, WT-VI-201 and WT-VI-202, were monitored using continuous recording pressure transducers. The transducers recorded water level changes, including any that may have been induced by the slug test activities. Monitoring wells with installed Westbay Systems® at the time of testing (WT-MW-2, WT-MW-7, and WT-MW-11) had each interval continuously monitored using the MOSDAX automated monitoring systems.

The slug test procedure consisted of pressurizing the riser or lift pipe with 10.8 psi of compressed nitrogen gas to lower the SWL approximately 25 feet. Following a short period of stabilization, the introduced nitrogen gas was quickly released from the interval via the 2-inch diameter discharge valve. Recovery of the water level was observed and recorded to obtain sufficient recovery data for analysis. The length of the observation period depended on the productivity of the formation within the tested interval. This determination was made based on field-reviewed slug test recovery curves produced by the WinSitu® software program. The WinSitu® slug test recovery curve graphs are presented in **Appendix D.**

Some slug test intervals with low K values would require impracticably long time intervals to reach equilibrium with the 10.8 psi nitrogen. The slug tests for those low K intervals were initiated before equilibrium was obtained and before a full 25-foot depression of the water level could be achieved. This did not affect the ability to obtain suitable data to determine the effective K value for the interval.

The manifold's 2-inch discharge valve was quickly opened to allow the release of pressure within the test interval. The water level was recorded until it recovered to within 90 percent of the original SWL, if possible, or the oscillatory wave decay was recorded in highly permeable zones. Tests were stopped in low yielding monitoring wells WT-MW-1 (190 to 265 feet bgs), WT-MW-5Dss, WT-MW-9d, and WT-MW-9Dss before obtaining 90% of the original SWL due to time constraints. The test was repeated where practical based on length of time for recovery.

Pressure transducer readings were recorded electronically and are presented in a tab delimited format in the *Pneumatic Slug Test Report of Results* dated July 22, 2011 presented in **Appendix E**.

The monitoring well intervals tested were as follows:

- WT-MW-1: (3) Straddle Packered Intervals (70-195, 190-265, and 300-477 feet bgs)
- WT-MW-3: (1) Test of well
- WT-MW-4: (1) Test of well
- WT-MW-5: (2) Straddle Packered Intervals (60-150 and 160-250 feet bgs)
- WT-MW-5D: (2) Tests-(1) within each of two nested wells
- WT-MW-6: (2) Straddle Packered Intervals (120-180, 180-272, and 150-260 feet bgs)

- WT-MW-8R: (1) Test of well
- WT-MW-9: (2) Tests-(1) within each of two nested wells
- WT-MW-9D: (2) Tests-(1) within each of two nested wells
- WT-MW-10S: (2) Tests-(1) within each of two nested wells
- WT-MW-10D: (2) Tests-(1) within each of two nested wells

Slug test and peripheral well transducer data were graphed using Microsoft Excel. The Excel graphs were reviewed with respect to the nature of the recovery curve to determine if a high K evaluation method was required. Recovery curves that demonstrated a predominantly oscillatory response in the water level upon the release of the compressed nitrogen were selected for high K evaluation methods. The review determined that the high conductivity evaluation methods of Springer-Gelhar for the WT-MW-1 (70 to 195 feet bgs) and WT-MW-8R tests, and Butler-Zahn for the WT-MW-1 (300 to 477 feet bgs) tests were required. The Springer-Gelhar method is used for unconfined aquifers and the Butler-Zahn for confined aquifers. The WT-MW-1 (70 to 195 feet bgs) and WT-MW-8R intervals were selected as "water table" intervals and are considered unconfined. The WT-MW-1 (300 to 477 feet bgs) interval is within the deep aquifer which is considered confined based on vertical profiling of water levels/pressure levels observed in monitoring well WT-MW-1. All remaining tests were evaluated using both Bouwer-Rice and Hvorslev analytical methods for comparison purposes, and for either confined or unconfined aquifers, as appropriate.

Slug test data evaluation was conducted using the AQTESOLV® Pro, Version 4.50.002 slug test analysis software. When AQTESOLV® processes data using the Bouwer-Rice and Hvorslev analytical methods, a recommended head range for line matching is identified with a set of dashed horizontal lines. The recommended head range was used where appropriate, but when the range seemed inappropriate (such as a head range for data points in the early unstable seconds of recovery or in the tail zone of the recovery curve), the EESD geologist manually selected a straight line solution (solid blue line) to match the curve in what was considered to be the correct head range. Confidence in the K results obtained using AQTESOLV® Pro is high, and the wide range in values observed is attributed to the variability of fractures within the bedrock.

Calculated hydraulic conductivity (K) values for slug tests conducted in the shallow aquifer (WT-MW-1 (70-195 feet bgs), WT-MW-3, WT-MW-4, WT-MW-5 (60-150 feet bgs), WT-MW-6 (120-180 feet bgs), WT-MW-6 (180-272 feet bgs), WT-MW-9s, WT-MW-9d, WT-MW-10Ss, WT-MW-10Sd, and WT-MW-10Ds) ranged from 0.002 feet per day (ft/d) (WT-MW-9d) to 861 ft/d [WT-MW-1 (70-195 feet bgs)]. The K values for each test are presented in **Table 3-3**. The geometric mean of K values for the shallow aquifer is approximately 0.43 ft/d.

Calculated K values for slug tests conducted in the deep aquifer [WT-MW-1 (300-477 feet bgs)], WT-MW-5Dss, WT-MW-5Dls, WT-MW-8R, WT-MW-9Dss, WT-MW-9Dls, and WT-MW-10Dd) ranged from 0.01 ft/d (WT-MW-10Dd) to 27 ft/d (WT-MW-8R). The geometric mean of K values for the deep aquifer is approximately 0.33 ft/d. It is worth noting that WT-MW-8R is completed in a dolomite solution void. The geometric mean of K values measured in the confined deep aquifer sandstone intervals is 0.20 ft/d, and for the confined deep aquifer dolomite (exclusive of WT-MW-8R) the geometric mean of K values is 0.26 ft/d.

Two slug tests conducted in the presumed confining zone had calculated K values of 9.8 ft/d [WT-MW-5 (160-250 feet bgs)] and 0.01 [ft/d WT-MW-1 (190-265 feet bgs)]. Based on the calculated K value of 9.8 ft/d, it appears that the WT-MW-5 (160-250 feet bgs) slug test interval may not have been entirely within the confining zone.

Pressure transducers were used for continuous monitoring of water levels within monitoring wells peripheral to the slug tests. The pressure transducers were initially programmed to record a pressure/water level reading every five minutes. The recording frequency was increased to once every minute in all transducers by the end of the day on March 16, 2011.

Peripheral wells were monitored to record water level changes that may have been induced during slug testing. Therefore, water level data were collected continuously over the period of the slug testing event that extended from March 16, 2011 to March 28, 2011. The data collected by the peripheral monitoring well transducers and MOSDAX recorders installed in the site Westbay System® are contained in the report titled *Pneumatic Slug Test Report of Results* (EESD July 22, 2011), is presented in **Appendix E**. It should be noted that times are shifted by 3 hours (i.e. 11:15 is actually 08:15) in the data from the March 17 to 18, 2011 MOSDAX systems download.

The purpose of the peripheral well monitoring is to better understand the bedrock fracture network interconnections between monitoring wells within the study area. The calculated water level elevations derived from the transducer information were compiled in a graph format to better identify if an individual slug test impacted adjacent or distant monitoring wells. The transducer and MOSDAX related graphs are presented in **Appendix F**. The graphs created depict one to four transducer records for the full period of slug test activities (March 16 to 28, 2011) and the daytime period (8:00 to 20:00) for each day that slug test activities were conducted. The graphs also indicate the time interval and monitoring well associated with each slug test conducted. Several interconnections were noted in the peripheral well monitoring data during slug testing. Interconnectivity between monitoring wells was more evident in the widespread influence on water levels when straddle packers were removed from monitoring wells WT-MW-1 and WT-MW-5 to slug test intervals within these monitoring wells. The interconnections are summarized in **Table 3-3**. The AQTESOLV® Pro output data containing input parameters and solutions are presented in **Appendix G** and a summary of calculated K values is presented in **Table 3-3**. A more detailed accounting of the slug testing can be viewed in the report: *Pneumatic Slug Test Report* (H&K Group, July 22, 2011), attached as **Appendix E**.

3.4.2 Borescope Survey

Colloidal borescope testing was conducted from March 1 to March 4, 2011. The AquaVISION™ Colloidal Borescope System was used to measure horizontal groundwater flow in selected monitoring wells. The borescope used consists of a down-hole video camera with a magnifying lens, an integral compass, and a control box that communicates between the down hole tool and laptop computer. The purpose of the camera is to photograph the horizontal movement of colloidal-sized particles suspended in the groundwater within the monitoring well. The video image is processed by AquaLITE™ Software computer program which attempts to identify particles and calculate their speed and direction.

By plotting the trajectory and speed of a colloidal particle across the video screen with the AquaLITE™ software, the relative flow direction can be determined. The compass display can then be used to determine the magnetic heading of the picture top, and from this the actual trajectory of the colloidal particle can be determined. The horizontal speed of the particle (and thus the flow speed) can be determined by the software.

Horizontal groundwater movement within monitoring wells is known to occur in narrow preferential flow zones. For a reliable measurement, the colloidal borescope must be placed in these preferential flow zones. For this project the test depths were selected from ATV logs provided by EDN.

Monitoring wells selected for colloidal borescope investigation were those related to the deep aquifer and WT-MW-9 due to the anomalously high SWLs observed in WT-MW-9 in the past. Test depths within each well were selected where the ATV log identified open fractures.

The AquaLITE™ Software computer program analyzed the video image, selected particle image pairs from the video, assigned flow rate and direction values to the image pairs, prepared graphical representations of the data, and conducted automated statistical analysis of the image pairs identified. The colloidal borescope investigation results in the form of rate and direction plots and Well Analysis Summary Sheets are presented in **Appendix H**.

The Well Analysis Summary Sheets provided in **Appendix H** contain the well, date, and data information (top), general statistical analysis (middle), and a vector analysis (bottom).The intent of the Well Analysis Summary Sheet is to assist in determining the "true" direction and velocity. However, the appropriate determination of direction and velocity is presented in the operator's interpretation annotated on the graphical data presented in **Appendix H**. The reason the automated statistical analysis is less accurate or contradictory to the interpreted data is because the automated data includes false or non-representative data pairs that were generated by electrical noise in the video images and particles tracked before groundwater motion regained equilibrium following tool placement.

Results for groundwater flow magnitude and direction as interpreted from the graphical representations of data obtained using the colloidal borescope are presented in **Table 3-4**. A vector representation of the flow velocities and directions is presented in **Figure 3-2.** It should be noted that in fractured bedrock, measured values represent micro-scale flow measurements and may not be representative of average flow direction within the formation.

Horizontal groundwater flow measured using the colloidal borescope identified multiple directions of flow and flow velocities ranging from 11.6 to 425 feet per day. However, a weak predominance of flow direction to the north and northwest with typical velocities on the order of a few hundreds of feet per day can be interpreted from the available data.

Peter M. Kearl, et al. (1998) states that flow velocities in fractures were found to be approximately one order of magnitude greater than velocities in the rock matrix. In another paper focused on relating groundwater flow behavior within a monitoring well, Peter M. Kearl (1997) states; "Based on the work presented in this paper, colloidal borescope measurements in the field should be reduced by a factor of 1-4 to calculate seepage velocity in the adjacent porous medium. Consequently, one could use these maximum velocity values measured by the colloidal borescope to estimate flow velocities in preferential flow zones in a heterogeneous aquifer." Therefore, applying a 1/4 to 1/10 conversion factor to the measured velocities is warranted to arrive at an estimate of overall groundwater flow velocity for the site.

3.4.3 Natural Attenuation Tests

Thirteen rock core samples were collected from monitoring wells WT-MW-2, WT-MW-4 and WT-MW-6, and submitted to American Westech Laboratories, Inc. of Harrisburg, Pennsylvania and Microseeps, Inc. of Pittsburgh, Pennsylvania. The randomly selected samples were collected from sand, silt and shale layers in these wells at various depths. The samples were submitted for total organic carbon (TOC), bio-available ferric iron (BAFI), bio-available manganese (BAM), and oxide iron (OI) content.

Monitored natural attenuation parameters analytical results consist of TOC concentrations ranging from non-detect to 1,300 mg/ kg, BAFI concentrations ranging from non-detect to 1,450 mg/kg, BAM concentrations ranging from non-detect to 885 mg/kg and OI concentrations ranging from non-detect to 230 mg/kg. In WT-MW-2, BAFI concentrations were non-detect in three of the four samples and detected in the 90 feet to 92 feet sample at the concentration of 1,450 mg/kg. BAM and OI concentrations were not detected in any of the four samples collected from boring WT-MW-2.

Copies of the analytical data reports for the analyses of BAFI, BAM and OI are provided in **Appendix I**.

3.4.4 -Term Pumping Test

Long-term pumping tests and related activities were performed on the shallow (WT-MW-15S) and deep (WT-MW-16D) aquifers within the Stockton Formation, which are separated by the confining zone located between approximately 200 and 280 feet bgs within the investigation area.

Field activities were performed by Tetra Tech between March 22 and April 25, 2013 with the exception of the WT-MW-1 packer deflation/re-inflation data; this information was collected by H&K on March 25, 2011. The review of the March 25, 2011 data by Tetra Tech is relevant in that it was used to supplement the data obtained from the long term pumping test conducted on the deep aquifer in monitoring well WT-MW-16D, described in more detail below. Pressure transducers were installed in the pumping wells and 24 observation wells to monitor water levels throughout the field activities. The complete findings for the long-term pumping tests and related activities discussed here are presented in the *Technical Memorandum: April 2013 Aquifer Testing Results* (Tetra Tech, July 2013) (**Appendix J**)

The formation hydraulic property information obtained from the long-term pumping test effort was used to prepare the three-dimensional groundwater model discussed in **Section 4.2**.

Shallow Stockton Formation Aquifer Testing

Step-Drawdown Pumping Test

A step-drawdown pumping test was performed at WT-MW-15S on April 4, 2013 to estimate a flow rate consistent with the goal that would result in drawdown of 25 feet, or less, in the pumping well during the subsequent constant-rate test.

The step-drawdown test was completed with WT-MW-15S pumped at rates between 1.4 and 4.2 gallons per minute (gpm) in four steps using a 3-inch Grundfos® submersible pump for a period of 420 minutes (7.66 hours). The flow rate was controlled throughout the test using a valve installed in the discharge line. All purge water generated during the step-drawdown and constant rate test was pumped into a frac tank for subsequent off-site disposal.

Drawdown and specific capacity results estimated using the Biershenck(1963)-Hantush(1964) method for the step-drawdown test are presented below.

Step	Time	Rate	Drawdown	Specific Capacity
1	(0 to 100 minutes)	1.4 gpm	5.8 feet	0.25 gpm/ ft dd
2	(100 to 220 minutes)	2.4 gpm	10.34 feet	0.23 gpm/ ft dd
3	(220 to 340 minutes)	3.5 gpm	16.58 feet	0.21 gpm/ ft dd
4	(340 to 460 minutes)	4.2 gpm	21.14 feet	0.20 gpm/ ft dd

Based on the step test results, a pumping rate of 4 gpm for the constant-rate test was selected to maintain the target drawdown of 25 feet or less.

Constant-Rate Pumping Test

A long term constant-rate pumping was performed at WT-MW-15S to estimate the transmissivity (T), hydraulic conductivity (K) and storativity/storage coefficient (S) of the shallow Stockton aquifer relative to the relationships between drawdown over time within each observation well and drawdown versus distance from the pumping well. This evaluation was performed only on wells that were screened above the top of the confining zone (approximately 210 feet bgs) because drawdown was not observed in wells screened within the deep aquifer beneath the site.

The constant-rate pumping test was performed over a 20.5 hour period at WT-MW-15S between April 8, 2013 (7:50 AM) and April 9, 2013 (4:19 AM) at an average pumping rate of 3.96 gpm. The test was terminated short of the planned 24 hours due to pump failure.

Time-drawdown plots using barometric-corrected water level data obtained from each observation well were analyzed using the AquiferTest (version 2011.1) data analysis package. The data were analyzed using the Moench fracture flow method for dual-porosity fractured aquifers (Moench, 1984 and 1988) and type curve matching techniques (i.e. Theis, 1935) to account for variations in aquifer isotropy, confining versus unconfined conditions, and the partially and fully penetrating wells used as part of the investigation. Both partially penetrating and fully penetrating test data match analyses were used as part of the evaluation because the pumping well (WT-MW-15S) is open throughout the shallow saturated thickness of the Stockton Formation from the water table to the confining zone. Although both test methods yielded valid results, the Moench method yielded results that better fit the early time data where anisotropic/fracture flow characteristics are more evident. Data evaluation further suggested that the partial penetration analysis was the best fit for the test evaluation based on the well-specific flow conditions and that flow within the Stockton Formation can be modeled as a porous medium.

The following range in hydraulic properties, based on partially-penetrating Moench time-drawdown analysis and type curve matching results, were generated for the shallow Stockton Formation aquifer.

- Transmissivity (T): 25.2 to 74.6 ft^2/d (Ave 43 ft^2/d)
- Bulk hydraulic conductivity (K): 0.16 to 0.47 ft/d (Ave 0.27 ft/d)
- Fracture Storativity (S): 2×10^{-7} to 4.9×10^{-4} (Ave 3.5×10^{-5})

The storativity values indicate that the shallow aquifer is semi-confined. Review of a drawdown contour map after 20.4 hours of pumping and just prior to pump failure revealed an anisotropic drawdown pattern with one arm of the ellipse that is aligned roughly along the locally mapped bedrock strike of N5˚E (**Figure 3-3**).

<u>Groundwater Sampling and Analysis</u>

Groundwater samples were collected from WT-MW-15S at the following five intervals throughout the aquifer testing process to evaluate the potential for changes in contaminant concentrations resulting from pumping the well:

- Step-Drawdown Test (4/04/2013; one hour following beginning of test)
- Constant-Rate Test (4/08/2013; one hour following beginning of test)

- Constant-Rate Test (4/08/2013; twelve hours following beginning of test)
- Constant-Rate Test (4/09/2013; several hours following pump failure)
- Post aquifer test sampling (4/11/2013; using low flow methods)

The groundwater samples were placed into a pre-chilled cooler and submitted under chain-of-custody documentation to Accutest Laboratory located in Dayton, New Jersey for Target Compound List (TCL) volatile organic compounds (VOCs) plus 1,4 dioxane analysis (SW 846 Method 8260).

PCE was detected in all five samples at concentrations above the rSWHS (5µg/L). Trace levels of the VOCs cis-1,2-dichloroethane, trichloroethene, chloroform, and toluene were detected in the results for one or more sample at concentrations well below applicable regulatory criteria.

PCE concentrations declined by a factor of four during the pumping phase of the constant rate test. The concentrations declined from 2,610 µg/L on April 4, 2013 during the step-drawdown test to 673 µg/L midway through the pumping test on April 8 2013. Concentrations then rebounded to 3,470 µg/L on April 9, 2013 shortly after pumping was stopped. Two days later sample concentrations declined to 2,990 µg/L on April 11, 2013.

Deep Stockton Formation Aquifer Testing and Historical Data Evaluation

A long-term pumping test was performed at Westbay System® well WT-MW-16D to obtain additional information regarding the hydraulic properties of transmissivity and storativity, and the interconnectivity of the deeper Stockton Formation beneath the site. Pumping was performed from the Zone 2 portion of the well (screened from 265 to 310 feet bgs) over the 24 hour period between April 22, 2013 (8:20 AM) and April 23, 2013 (8:20 AM).

Due to the small diameter of Westbay System® wells (1.5-inch ID), a Waterra High Flow System pumping system was used in lieu of the Grundfos® submersible pump. The Waterra system consists of 1.25-inch outer diameter stainless steel foot valve set on one-inch OD low density polyethylene (LDPE) tubing. Flow discharge was regulated using a HydroLift II actuator. The foot valve was set at 140 ft bgs, approximately ten feet below the top of the water table. The well was pumped at a rate of 0.75 to 1.0 gpm over the initial 90 minutes of the test and at 0.75 gpm thereafter. Pumping was halted for a period of 15 minutes every two hours over the initial 17.42 hours of the test, per the manufacturer's recommendation, to ensure the pump did not overheat. The pump was then operated continuously over the 395 minute balance of the test once it was determined that overheating would not occur. Water level data were recorded once per minute from the pumping well using a pressure transducer (Solinst Gold Levelogger) that was suspended from a cable set at 180 feet bgs.

Time-drawdown plots using barometric-corrected water level data were prepared for the following two nearby deep wells that, like the pumping well, exhibited a very small drawdown (<0.1 feet) during the long-term pump test: WT-MW-5Dss (located 204 feet to the west-southwest; completion interval 266 to 286 feet bgs) and WT-MW-10Dd (located 297 feet to the southeast; completion interval 383 to 403 feet bgs). A best fit Theis solution combined match to the test data was then used to determine the following estimated transmissivity and storativity values for the deep Stockton Formation aquifer:

- Transmissivity (T): 918 ft^2/d
- Fracture Storativity (S): 3.4×10^{-4}

The high calculated transmissivity value is consistent with the findings for 20 pneumatic slug tests performed on nine deep Stockton Formation observation wells from March 16 to March 28, 2011. During pneumatic slug testing event, on March 25, 2011 semi-permanent straddle packers were deflated, moved within the borehole, and then re-installed in the presumed source area monitoring well WT-MW-1 and in the nearby monitoring well WT-MW-5 to slug test selected intervals within these wells and record water levels in nine related observation wells. Theis-equation drawdown and recovery curves were prepared for select wells and completion intervals to derive representative transmissivity and storage coefficient (storativity) values. Confirmation of high calculated transmissivities for the deep Stockton Formation wells (between the 2011 and 2013 data) coupled with the observed narrow variance in hydraulic head (90 to 93 feet amsl) for the nine observation wells monitored in March 2011 indicate that there is good hydraulic connection between fractures in the deep Stockton Formation and underlying highly transmissive carbonate rocks.

Water Level Trend Monitoring

Water level monitoring was performed at the pumping well (WT-MW-15S) and at 38 monitoring intervals from 24 area observation wells throughout the aquifer testing process. The water level study was conducted from March 22, 2013 through April 25, 2013. The water level data was collected using pressure transducers and data loggers. Hydrographs were created for each well that plotted barometric-corrected water levels along with precipitation data averaged from two nearby weather stations and test pumping rates. Hand measurements using sonic water level probe were collected periodically to verify transducer data.

An evaluation of water level change over the 34 day period of long-term monitoring (March 22 to April 25, 2013) within the 24 observation wells was performed to determine what the effect of pumping from shallow Stockton Formation well WT-MW-15S would reveal about the overall hydrogeologic framework of the area. The water levels were also evaluated to determine if there were influences from offsite groundwater withdrawals and to evaluate recharge by observing how precipitation events impacted water levels. The result of this effort indicated that the wells can be grouped into one of the following three response categories summarized below. A summary of how each well is categorized into the three response groups can be found in Table 5 of the Tetra Tech technical memorandum presented in **Appendix J**.

Category 1 Wells

These are wells completed in the shallow aquifer above the low permeability confining zone that responded to WT-MW-15S aquifer testing activities, and had SWLs between 165 and 179 feet amsl. Other characteristics of Category 1 wells include:

- Clearly defined drawdown occurred during both the WT-MW-15S step-drawdown test and constant rate test.
- Minor water level increases were observed with precipitation events, particularly those that occurred on April 10 to 12 and April 18 to 20, 2013, and from low-amplitude semi-diurnal earth tide effects (these responses were observed in several wells only).

- No evidence was observed of any pumping related water level responses from other pumping wells in the area. These wells include the Aqua America high yield public supply well, Cabot Well, Upper Merion Well, and Babb (Babbs Well), each of which are completed in the carbonate rocks below the Stockton Formation and are pumped at near continuous rates 24 hours per day, seven days a week when in operation. Assuming constant operation, there would likely be no short-term water level fluctuations observed at the Site resulting from their operation even if their zone of influence extends to the Site because constant operation would not produce a short-term water level response that could be recognized.

<u>Category 2 Wells</u>

These are wells completed in the deep aquifer below the low permeability confining zone that did not respond to WT-MW-15S aquifer testing activities and had SWLs between 85 and 89 feet amsl. Other characteristics of Category 2 wells include:

- These wells monitor the deep portion of the Stockton Formation or the upper portion of the carbonates.

- Water levels in Category 2 wells average around 80 feet lower than Category 1 wells. These large head differentials confirm that a significant confining zone separates the two Stockton Formation aquifers and restricts vertical migration. These data also indicate that the flow system monitored by Category 2 wells is highly transmissive and has a strong hydraulic connection with regional groundwater sinks (i.e. major water bodies, pumping wells, etc.).

- Water level increases were observed with precipitation events that occurred on March 25, April 10 to 12 and April 18 to 20, 2013. Very little lag time was noted between the precipitation event and water level response and evaluation of these data. Increases in water levels due to precipitation events were somewhat greater than those observed in Category 1 wells and may reflect a lower storativity of the deep Stockton Formation / upper carbonates or a greater exposure of the carbonates to infiltration.

- Low-amplitude, semi-diurnal fluctuations due to earth tides were evident in a number of Category 2 wells.

- The similarity in hydraulic heads between the deep Stockton Formation and underlying carbonates suggest that the two units function as a single interconnected flow system.

- Category 2 wells also did not respond from the pumping of local water supply wells, which in part reflects the highly transmissive nature of the deeper groundwater flow system.

Category 3 Wells

These wells displayed non-typical water levels and/or trend patterns, and did not respond to WT-MW-15S aquifer testing activities. Other characteristics of Category 3 wells include:

- Water levels changed very little over the course of the study. One notable and unique exception was WT-MW-2; Zone 2 (screened from 83 to 117 feet bgs), which did not respond to the pumping at WT-MW-15S yet exhibited a 14-foot drop in water level over the course of testing. A plausible scenario for this finding is enhanced drainage from the upper aquifer to the lower aquifer through fracture(s) associated with this well. It should also be noted that pumping-related drawdown was observed within other completed zones within this well (i.e. in Zone 1 at 40-80 feet bgs and Zone 4 at 157-187 feet bgs).

- Several Category 3 wells are completed in the apparent low permeability zone between the shallow and deep Stockton Formation aquifers and exhibited water levels that were intermediate between the Category 1 and Category 2 wells.

- This category also included several wells distant from WT-MW-15S that did not demonstrate any discernible drawdown (ESA-MW-101, ESA-MW-101D, ESA-MW-103).

- Water levels at WT-MW-9D are anomalous because water levels in this well were approximately 20 feet higher than Category 1 wells and 100 feet higher than Category 2 wells. This well has a screened interval comparable to Category 2 wells. Minor precipitation-related water level changes were observed in WT-MW-9D, more so than any other Category 3 well.

3.5 Long Term Water Level Monitoring

The long-term continuous measurement of monitoring well SWLs within selected monitoring wells was conducted as part of the site characterization effort. Sixteen wells, WT-MW-3, WT-MW-4, WT-MW-5Dss, WT-MW-5Dls, WT-MW-6, WT-MW-8R, WT-MW-9s, WT-MW-9d, WT-MW-9Dss, WT-MW-9Dls, WT-MW-10Ss, WT-MW-10Sd, WT-MW-10Ds, WT-MW-10Dd, WT-VI-201 and WT-VI-202, were monitored during the months of March, April, May, July, August, and September, 2011. Five of the sixteen wells (WT-MW-8R, WT-MW-9Dls, WT-MW-10Ss, WT-MW-10Ds and WT-MW-10Dd) were monitored for the months of October through December, 2011. The reduced effort, originally intended to involve four monitoring wells for a period of four months, was changed to continuous monitoring of water levels of five monitoring wells for a period of three months.

The wells monitored from March to September 2011 were selected because of their accessibility for transducer installation for long term monitoring. Monitoring wells that were not accessible due to permanent Westbay System® installations were WT-MW-1, WT-MW-2, WT-MW-5, WT-MW-7, and WT-MW-11. The rationale for selecting the five wells for the reduced-count monitoring effort was because WT-MW-8R, WT-MW-9Dls, and WT-MW-10Dd represented the deep aquifer at widely separated locations, WT-MW-10Ds represented the shallow aquifer and exhibits a direct connection to monitoring well WT-MW-3 based on previous transducer monitoring results, and WT-MW-10Ss because it monitored the water table depth in the shallow aquifer.

In-Situ, Inc., Level TROLL® 500 vented pressure transducers were used to continuously measure SWLs in selected groundwater monitoring wells at the site. Vented transducers were selected over unvented because vented transducers do not require mathematical compensation for atmospheric pressure changes.

The In-Situ, Inc., Level TROLL® 500 vented pressure transducers used consisted of either 15 pounds per square inch (psi) (35 feet) or 30 psi (69 feet) rated transducers. The 15 psi and 30 psi transducers have a measuring resolution of 0.002 and 0.004 feet, respectively. The accuracy of the transducers is documented as within 0.1 percent across the full range of the instruments.

Static water levels were measured every five minutes by the pressure transducers. The pressure readings were measured and stored in the transducers' internal memory until the data were downloaded to a portable computer equipped with the In-Situ, Inc., Win-Situ software. A Solinst Inc. Water Level Meter was used to collect a depth-to-water measurement at the time of transducer deployment and at each downloading event. The depth-to-water measurements were used to calibrate the transducer pressure readings to the measured depths to SWL.

Precipitation was measured onsite by a continuous reading rain gauge. A La Crosse Inc., WS-2811SAL-IT weather station with a tipping bucket rain gauge was installed at the EESD job site trailer to record precipitation events.

When reviewing the water level elevation graphs (**Appendix K**), several influences to water level elevations can be identified. Evident in almost all of the water level elevation graphs is a low amplitude wave with a frequency of slightly less than two cycles per day. This is interpreted to be a result of earth tides influencing the aquifer. When viewing the tidal cycle on the enclosed graphs, it should be noted that the frequency is foreshortened from March 1 to March 16, 2011 due to the transducer sampling frequency of once every five minutes during that time versus once every one minute from March 16 through March 31, 2011.

Graphed data from the automated rain gauge, presented in **Appendix K**, recorded rainfall events. Most monitoring wells exhibited water level responses to major rainfall events with WT-MW-9Dss being least sensitive and monitoring wells WT-MW-6 and WT-MW-9d were particularly sensitive.

Water level elevations in monitoring wells WT-MW-5Dss, WT-MW-6, WT-MW-9Dls, WT-MW-10Dd and WT-MW-10Sd can be observed to rise and fall sharply during one or more of the rainfall events. This is interpreted to indicate surface runoff or shallow perched groundwater had accumulated in the subsurface vaults to the point that the accumulated water overtopped the well casings and entered the wells, which had their expansion caps removed to accommodate the vented transducer cables. As soon as this condition was noticed, upon review of the water level elevation data, the transducers and cables were removed from the monitoring wells so the water-tight expansion caps could be re-installed in the wells. These activities resulted in an interruption of the continuous monitoring program in the months of June and July.

Pneumatic slug tests were conducted on site monitoring wells between the dates of March 16 and March 28, 2011. The only monitoring wells that were part of the long term water level monitoring task that displayed direct effect from the slug testing were WT-MW-3 and WT-MW-10Ds. It can be inferred that these two monitoring wells have an efficient groundwater connection, probably through a fracture or fracture network, because the slug test of one can be observed to influence the other.

As part of the slug testing of monitoring wells WT-MW-1 and WT-MW-5, the straddle packers that were in place since completion of the well borings were removed, reconfigured and re-installed. The removal of the packers and subsequent vertical drainage of the upper aquifer to the lower aquifer had an influence on water level elevations in most of the monitoring wells at the site. The influences ranged from subtle to significant and from a water level drop (typically seen in shallow aquifer wells or zones) to a water level rise (common in deep aquifer wells or zones). The different effects on the shallow and deep aquifers confirm the existence of two aquifers that are separated by a confining zone which sustains a significant downward gradient. The effects can be observed on the graphs (**Appendix K**) for the dates of March 22 and 23, 2011 when the WT-MW-5 slug tests were conducted, and the dates of March 24 and 25, 2011 when the WT-MW-1 slug tests were conducted.

When reviewing the April water level elevation graphs (**Appendix K**), it is evident that WT-MW-3, WT-MW-4, WT-MW-5Dss, WT-MW-9Dls, WT-MW-10Ss, WT-MW-10Sd, WT-MW-10Ds, WT-MW-10Dd, WT-VI-201, and WT-VI-202 were influenced by the removal of straddle packers in monitoring wells WT-MW-1 and WT-MW-5. The straddle packers were replaced when permanent Westbay System® packers were installed.

Groundwater sampling activities occurred during the long term water level monitoring in the months of May, August, and December 2011. These activities were observed to have influenced water levels in monitoring wells peripheral to the sampled well. The peripheral wells that were influenced were: monitoring well WT-MW-3 by sampling at WT-MW-10Ds, monitoring well WT-MW-10Ds by sampling at WT-MW-3, monitoring well WT-MW-5Dss by sampling at WT-MW-10Dd, monitoring well WT-VI-201 by sampling at WT-MW-10Ss, WT-MW-9Dss, and WT-MW-9Dls on each other, and WT-MW-10Ds and WT-MW-10Dd on each other.

Consistently distinct water level patterns were observed in the shallow and deep groundwater flow regimes, the elevations for the shallow pattern vary considerably while the deep pattern elevations are consistently near the 85 foot elevation mark. These observations are consistent with the separate shallow and deep groundwater zone conceptual model.

When reviewing the water level elevation graphs (**Appendix K**), it was observed that wells monitoring the deep aquifer, WT-MW-8R, WT-MW-9Dls, and WT-MW-10Dd, had water level elevations disturbed on December 1, 2, 5, 6, 7, 8, 9, 14 and 20, 2011 by nearby monitoring well drilling conducted as part of the site investigation. Water levels in monitoring wells WT-MW-10Ss and WT-MW-10Ds, which monitor the shallow aquifer, exhibited water level disturbance related to drilling of monitoring well WT-MW-16S to a total depth of 220 feet bgs on December 14, 2011. The water level elevations for the deep groundwater pattern resulting from nearby drilling vary considerably from the shallow groundwater elevation pattern resulting from the same drilling, providing additional evidence of two aquifers separated by a confining zone.

3.6 Sanitary Sewer Investigation

3.6.1 Sanitary Sewer Investigation

An investigation into the soil adjacent to the western sanitary sewer was conducted on December 8, 2011. The soil was investigated by trenching to uncover the sanitary sewer and collecting soil samples from beneath the sanitary pipe that conveys the sanitary flows from the facility. The purpose of the sanitary sewer investigation is to evaluate the sanitary sewer as a potential historic contaminant migration pathway and release point for PCE observed in initial groundwater samples collected on October 4, 2011 from monitoring wells ESA-MW-104m and ESA-MW-104d at concentrations of 10.9 and 15.1 µg/L, respectively. The area of investigation, located adjacent to the inside of the northwest corner of the perimeter fence near Gate Number 3, is presented in **Figure 3-4**.

A trench was excavated to the top of the sanitary sewer using a backhoe with an extendable arm. Excavated soil was periodically screened for volatile organic compounds using a photo ionization detector (PID). The soil immediately above and on either side of the sewer line was excavated using hand shovels, exposing two consecutive bell fittings on the line. The soil samples for volatile analysis were collected using Encore® soil samplers and the soil for the remaining analytes was collected using a stainless steel sampling tool.

A video survey from inside the pipeline revealed vertical pipe misalignments and cracks that allowed infiltration into the sewer pipe. The groundwater infiltration observed during the sewer bypass was sampled and the samples were submitted to Accutest Laboratories for analysis of VOCs, SVOCs, and priority pollutant metals. The laboratory results for the groundwater infiltration sample detected two compounds at concentrations below their respective rSWHS. Benzo (a) anthracene and fluoranthene were detected at concentrations of 0.125 micrograms per liter (µg/L) and 0.130 µg/L, respectively. All other analytes were listed as non-detect by the laboratory.

All PID measurements collected during trench excavation were non-detect for open air and headspace screened soils. Five soil samples collected for laboratory analysis, with sample IDs of TT-1-1 through TT-1-5, were collected from the soil beneath the sewer pipe at or near the lip of the two bell ends of pipe sections. The five soil samples were submitted to Accutest Laboratories for analysis of VOCs, SVOCs, and priority pollutant metals. A map depicting the pipeline location, excavation, and soil sample locations is presented in **Figure 3-4**.

The laboratory analysis of the five soil samples (TT-1-1 through TT-1-5) collected from beneath bell connections of the sanitary sewer pipe detected dimethyl phthalate (DMP) in all five samples at concentrations ranging from 104 to 172 µg/kg. There is no PADEP rSWHS for DMP, and DMP is unregulated as a groundwater or soil contaminant in the state of Pennsylvania. All other organic compound analytes were listed as non-detect by the laboratory and none of the detected inorganic elements exceed their respective rSWHS. The laboratory Certificates of Analysis for the water and soil samples are presented in *West Sanitary Sewer Investigation Report* (EESD, February 27, 2012), attached in **Appendix L**.

Concentrations in soil samples indicate a source for the groundwater contaminants observed in monitoring wells ESA-MW-104m and ESA-MW-104d does not exist in the vicinity of the excavation. This conclusion is supported by the absence of PCE in the sample of shallow groundwater infiltrating the sanitary sewer.

3.6.2 Sanitary Sewer Investigation

A Video Pipe Inspection of the eastern sanitary sewer line was performed on Tuesday, March 6, 2012 as part of the investigation. A brief summary of some key findings is as follows:

- Manhole E to Manhole F: Slight separation of several joints, notably at 8’ 7”; Manhole MH-F is a dropped manhole.

- Manhole E to Manhole D: At 91 feet, pipe turns approximately 45 degrees to the left (south); Unable to proceed.

- Manhole MH-J: Unknown manhole found behind nitrogen tanks, named Manhole MH-J. Abandoned and plugged piped extending to the west and north.

- Manhole MH-G to Bldg. 600: Tie-in on north side of line at 26 feet from MH-G. Some inflow from found pipe; One-way flap at 37’.

- Manhole G to Manhole H: Pooled water from 77’ 5” to 85’ 6” as a result of what appears to be build-up at entrance to manhole drop

- Manhole E to Manhole D: At 91’, pipe turns approximately 45 degrees to the left (south); Unable to proceed.

- Manhole I to Manhole H: Pipe damage at joint and breaks in pipe wall, at 14 feet; Tie-in at top of pipe at 111’; Pipe damage at 162’.

On August 16, 2012, EESD completed the coring of the concrete sidewalls of manhole MH-H, a drop manhole, and sampling of the surrounding soil. The manhole vault is located between Buildings 500 and 600, is composed of reinforced concrete, is cylindrical in shape, and is approximately 20 feet deep. The work plan stipulated four locations within the manhole were to be drilled and sampled. A fifth corehole became necessary when enough suitable soil for a sample could not be obtained from location MH-H-03.

The sample locations were approximately 6 inches above the floor of the vault, except for MH-H-5 which was collected from 4.5 feet above the floor. MH-H-5 was chosen at this location to attempt to sample the bedding materials of the sanitary main at the drop into the bottom of the manhole. A specialized electric drill was used to core through the concrete and gain access to the material behind the manhole wall. An EESD geologist subsequently collected four soil samples within three feet of the manhole wall through the drilled holes using a decontaminated auger bit on an electric drill. The soil samples were placed on ice in a sealed cooler and sent, with chain-of-custody documentation, to Accutest Labs of Dayton, New Jersey where they were tested for VOCs by Environmental Protection Agency method 8260B. Locations of the samples are depicted in **Figure 3-5**.

The laboratory analytical results detected VOCs at low concentrations that are summarized in the attached **Table 3-5**. A review of the results indicates there are no compounds that exceed any rSWHS. PCE was detected in two of the samples at estimated concentrations that were below the laboratory method practical quantitation limits.

The low concentrations of PCE observed suggest that manhole MH-H and, by extension, the associated sanitary sewer line are not likely sources for the PCE observed in nearby groundwater.

3.7 Vapor Intrusion Assessment

Vapor intrusion assessment and sampling was conducted at Lockheed Martin over five separate investigation events. Mr. Everett Mount, CIH, CSP, of Safety Synergy, LLC, conducted his investigations in June and October of 2010 and in October of 2011. Tetra Tech conducted a sub-slab vapor investigation between May and June 2012, and a soil gas investigation in June 2013.

3.7.1 to 2012 Vapor Intrusion Assessment - Everett Mount

In the 2010 investigations by Mr. Mount, the area evaluated was located on the northern side of the Lockheed Martin property in the area of the former AST. The evaluation included vapor sampling at indoor air locations, sub-slab locations, and soil gas locations. Indoor air samples were collected from the same locations two or three times (replicates) on the dates of June 3, 2010, September 27 and 28, 2010, and September 12 and 13, 2011 to account for seasonal variations. Multiple sampling events to account for seasonal variation also occurred for subslab locations on June 14, 2010, October 20 and 21, 2010, and October 10 to 12, 2011, and for soil gas locations on October 11 and 13, 2010, April 8, 2011, and April 8 and 13, 2012.

Prior to excavation, soil PCE values in the area of the AST exceeded the Pennsylvania Default Screen Values (soil to indoor air) of 5.9 mg/kg (residential) and 10.0 mg/kg (non-residential). However, soil sampling conducted after excavation showed concentrations had been significantly reduced and all measurements were below both residential and non-residential Pennsylvania Default Screen Values (soil-indoor air). At no time have contaminants been found in groundwater at concentrations above the Pennsylvania Default Screen Values (groundwater-indoor air) for vapor intrusion. The Pennsylvania Default Screen Value for PCE, for example, is 49,000 µg/L; well above the historic maximum concentration of 4,200 µg/L for that analyte. The vapor intrusion work was conducted as part of a receptor evaluation following guidance published in Document Number 253-0300-100 under the Act 2 Statewide Health Standard.

Six buildings (Buildings 750, 600, 300, 500, 550, and 100-T9000), were visually assessed. Observations included proximity to the source area, building size, occupancy patterns, work area layout, and any observed elements or structural deficiencies that could be preferential pathways for vapor intrusion. An aerial photograph of building locations can be found in **Figure 3-6**. Floor plans of all areas including the locations of the sampling points are presented in Appendix D of the report titled *Vapor Intrusion Qualitative Assessment and Initial Sampling Results* (Mount, July 28, 2010), contained in this report in **Appendix M.**

All vapor intrusion samples, sub-slab, soil gas, and indoor air, were collected in evacuated six liter (6L) Summa canisters and analyzed by Lancaster Laboratories using EPA method T0-15 (gas chromatographic mass spectroscopy scan). All samples were collected and documented by a Certified Industrial Hygienist and submitted with proper chain of custody forms. Samples were transported to and from the site by Lancaster Laboratories personnel.

Sub-slab sampling probes were manufactured by AMS Samplers Inc (AMS). These probes were installed using AMS installation equipment and dry drilling of slabs in sample areas. Probes were protected against tampering using tamper resistant caps also manufactured by AMS. The probe insertion point was sealed with concrete and the new concrete was coated with a waterborne acrylic sealer to prevent contamination. A diagram of a typical sub-slab sampling train is illustrated in **Figure 3-7**.

Sub-slab samples were collected at a flow rate of 0.1 liters per minute. When quality control duplicates were collected individual regulator flows were reduced to 0.05 liters per minute. This resulted in a total sampling flow of 0.1 liters per minute. Prior to sampling, the entire sampling tube and probe was purged using a hand held vacuum pump. A helium shroud was placed around the probe, filled with helium and fully sealed using modeling clay. The shroud remained in place during the entire sampling period for each sample. During the first round of sub-slab sampling, an abandoned sump pit was uncovered in Building T9281A when vinyl tiles were removed prior to drilling. Standing water in the pit was removed for disposal, and analysis of the water found that it contained PCE.

Soil gas samples, distinguished from sub-slab samples, were collected from outside of building footprints in a total of nine locations. The locations of the points are shown in the report contained in **Appendix M**. Soil gas sampling locations were selected considering available groundwater direction, distances from the original source area and sub-slab sample data collected at the complex.

Permanent soil gas sampling probes manufactured by AMS are similar to the sub-slab sampling probes, differing in the surface completion. Probe tubing was sealed within an aluminum tamper resistant collar. The annular space between the soil and collar was also sealed with concrete to create an impervious barrier to surface water. Soil gas samples were collected in a method similar to what was described for the sub-slab vapor samples.

Sample probe target depth was 5 feet. Actual depths ranged from 3.5 to 5 feet. The sample probes (SG-1, SG-5, SG-7) were driven to the point of refusal which was less than the target depth of 5 feet. Groundwater incursion was observed in some sample probes at the lower elevations of the site during the first round of sampling. This required re-sampling of the wet points. The point designated SG-4 was persistently wet during the first round of sampling and needed to be abandoned. A temporary AMS point was hand driven at the time of sampling and used to sample this location. Sampling was conducted using the permanent point during the second round of sampling. This round of sampling was conducted after a long period without rain.

All indoor air samples were collected after normal working hours. This was to ensure worst-case indoor air sampling conditions created during off-hours when reduced door-openings and HVAC operations result in reduced air exchange. In areas where overhead doors are present (Building 300, 550, 600 and 100 - T9000) these overhead doors were closed for several hours (minimum) prior to sampling. In the Building 600 utility tunnel, the normally operational large exhaust fan was also turned off eight hours prior to sampling.

Sample collection events were conducted two or three times separated by several months for most indoor air and sub-slab sample locations to address seasonal variation. Quality control measures also included analysis of two rounds of sampling for the new sampling points in the Building 100 T9000 area.

No organic vapors were detected in indoor air at concentrations above the Pennsylvania Non-Residential Medium Specific Concentration for Indoor Air Quality (MSC_{IAQ}). The COCs in site groundwater, PCE and TCE, were not detected in any of the indoor air samples collected inside normally occupied areas in the Lockheed Martin buildings. Two indoor air samples in normally unoccupied areas did detect PCE at very low concentrations. The second round indoor air samples (September 27, 2010) collected inside the Building 600 cable vault had a low but detectable concentration of PCE. This sample was collected after a period of heavy rain and rain water incursion into the vault was noted. The second round indoor air sample in T9281A (September 13, 2011) also had a low but detectable concentration of PCE. This appears to be related to the sump pit that was discovered. In both cases, the detectable concentration was well below the Non-Residential MSC_{IAQ}..

Trace concentrations of commonly used organic vapors were detected in a number of indoor samples. These low level contaminants did not exceed Non-Residential MSC_{IAQ} criteria. In six indoor air samples, contaminants were detected at concentrations above the more conservative Residential MSC_{IAQ} criteria. These areas included Building 600 Boiler Room, Building 600 Chiller Room, Building 500 Server Room and the T9277, T9000 East and T9000 Backup Security Operations Center (BSOC) sampling locations in Building 100. None of these indoor air contaminants were detected in corresponding sub-slab samples collected in these areas. The indoor air contaminants which consisted of benzene, ethyl benzene, 1,4-dichlorobenzene, 1,2,4- trimethyl benzene, xylene isomers and vinyl chloride could all be associated with materials such as fuels and plastics that are commonly used during daily operations of the facility.

During the first round of sub-slab sampling in June of 2010, PCE was detected at concentrations at or slightly above the Pennsylvania Non-Residential Medium Specific Concentration for Soil Gas (MSC_{SG}) during sub-slab sampling in three of the fifteen sampling points. Concentrations were slightly above the Non-Residential MSC_{SG} in both samples collected in the T9000 area of Building 100. In the Building 600 Chiller Room, both duplicate samples showed PCE concentrations at or above the Non-Residential MSC_{SG}. TCE was not detected in any sub-slab samples at concentrations above the Non-Residential MSC_{SG}.

During the second phase of sampling conducted during October 2010, PCE was detected at concentrations above the Non-Residential (MSC_{SG}) in 2 of the 21 sub-slab samples. The sub-slab sample collected at the T9000 West point showed repeated PCE concentrations above the Non-Residential $MSC_{SG.}$ The sub-slab sample in T9281A, also from beneath Building T9000, exceeded the Non-Residential. TCE was not detected in any sub-slab sample at concentrations above the Non-Residential MSC_{SG}..

During the third phase of sampling in October 2011, PCE was detected at concentrations above the Non-Residential MSC_{SG} in 1 of the 21 sub-slab locations (T9000 West).

During the third phase of sub-slab sampling during October 2011, TCE was not detected in any sub-slab sample at concentrations above the Non-Residential MSC_{SG}.

The results from the two rounds of soil gas testing are included in Appendix G of the report contained in **Appendix M**. These samples were collected from areas surrounding the original source area and adjacent buildings. Detectable concentrations of PCE were found in the samples labeled SG-2, SG-3, SG-4 and SG-9. All concentrations were well below Non-Residential MSC_{SG} for PCE. These samples are all north of the original tank location and appear to correlate with groundwater flow direction from the source. Sample SG-4, also had detectable concentrations of TCE, but was well below the Non-Residential MSC_{SG} for that chemical.

3.7.2 Vapor Intrusion Assessment - Tetra Tech

Introduction

A vapor intrusion assessment of the T9000 portion of Building 100 (hereinafter referred as Building T9000 or the T9000 area) was performed by Tetra Tech between May 2012 and January 2013 to supplement existing site data obtained during the June 2010 to April 2012 vapor intrusion investigation described in the previous section, and to evaluate Engineering Evaluation and Cost Analysis (EE/CA) for various indoor air quality remedial measures for this portion of the facility.

Building T9000 is annexed to the west end of Building 100 on the north-central portion of the Lockheed Martin site, and is located approximately 40 feet east of the former AST. Although post-excavation sampling following the remediation of former AST area soil indicated that residual concentrations for PCE met Pennsylvania default screening values for the soil-to-groundwater migration pathway, Lockheed Martin elected to evaluate the sub-slab vapor beneath and indoor air within the facility because of the close proximity of Building T9000 to source area as part of its overall voluntary environmental investigation.

Building T9000 is divided into 11 rooms that are used for storage, woodshop operations, BSOC–related activities, and research-related testing. Typical building construction consists of poured concrete or floating slab floors, with either poured or masonry block walls, and a steel truss roof system. The annular spaces between the floating floor slabs are sealed by a rubber-like gasket of fair to poor condition that creates a potential migration pathway into the building from the sub-slab environment.

The vapor intrusion assessment was completed in the following three phases:

- Phase I (May-June 2012) – An investigation of Building T9000 sub-slab soil and soil vapor; indoor air quality (IAQ); outdoor ambient air; and the cleanout, sampling and investigation of a building sump and associated pipelines.
- Phase II (September 2012 and January 2013) – A soil gas screening survey of soil to the north and west of the T9000 area
- Phase III (June 2013) – A soil boring program to quantify the nature and extent of VOCs in soil north and west of the T9000 building.

Complete copies of the following two reports that present the investigation findings for the vapor intrusion assessment, are presented in **Appendix N**: *Phase 5b Sub-Slab Investigation* *for T9000 Area* (Tetra Tech, February 2013) and *Technical Memorandum: T9000 Soil Boring Program (Tetra Tech, July 2013).*

Sub-Slab and Indoor Air Quality Investigation

Sump Cleanout and Inspection

An investigation was performed on February 16, 2012 of a sump located in the floor of Building T9000 room T9281 that reportedly receives sub-slab moisture from three 3-inch diameter pipelines (Pipes A, B, and C) that enter at the bottom of the sump vault. The moisture received by the sump reportedly reduces the potential for pressure buildup beneath the floor slab that would have interfered with highly sensitive testing formerly conducted at this facility. The sump measures three feet by three feet wide by 12 feet deep and is covered by a steel plate.

Approximately three feet (240 gallons) of water was removed from the sump and associated pipelines by Elk Environmental Services. The sump water was described as brown with a sheen, but no elevated PID reading or odor was observed. Accumulated sediment in the bottom of the sump, sump sidewalls, and the lateral pipelines was removed by pressure washing.

One grab sample of the sump water was collected and submitted to Accutest Laboratories for VOC and SVOC analysis. The only results which exceeded PADEP rSWHS were PCE at 8.1 µg/L (rSWHS 5 µg/L) and the SVOC bis(2-ethylhexyl)phthalate at 672 µg/L (rSWHS 6 µg/L).

A video survey of the lateral pipes was performed later the same day by Master Locators, Inc. The pipeline construction paths were, however, much more complicated than originally assumed and the survey was limited to lengths of 20 feet (Pipe A), ten feet (Pipe B), and three feet (Pipe C), due to a bend, impassible opening, and solid blockage, respectively, prior to reaching the pipeline terminus.

Sub-Slab Soil Investigation

A total of seven borings were drilled through the eight-inch reinforced concrete slab using a hammer drill. A core-bit sampling device was then used to collect one soil sample from each boring at variable depths between 0 and 3 feet bgs. No borings were drilled through floating slabs. At the conclusion of the work, the boreholes were filled to the base of the slab with potting soil and the slab was grouted with concrete. Pertinent observations included a one quarter-inch thick plastic-like material that was consistently encountered within the concrete slab at a depth of three-inches, and sub-slab soil consisting of clay and rock fragments that are underlain by brown fine-to-medium-grained sand.

The soil samples and a duplicate QA/QC sample were submitted to Accutest Laboratories for VOC analysis. The analytical results met the PADEP Act 2 soil non-residential rSWHS (0-2 feet) and the volatilization to indoor air screening criteria. The detections were limited to low concentrations of five analytes, including PCE at six locations at concentrations ranging from 0.27J µg/kg to 4.4J µg/kg and TCE at one location at 0.68J µg/kg.

<u>Sub-Slab Vapor and Indoor Air Sampling Procedures</u>

Ten permanent sub-slab soil vapor sampling probes were installed between April 9 and May 4, 2012. The probes were installed to create an air-tight seal that separates the sub-slab environment from indoor air and allows for the collection of sub-slab vapor without introducing indoor air. The probes were installed using an AMS Sub-slab Vapor Probe Kit. The borehole annulus was filled with clay. One week after installation two coats of Minwax® Polycrylic® Protective Finish were applied to prevent water from entering the probe. Each probe was then sealed with a tamper-resistant cap.

The sub-slab samples were collected between May 21 and May 31, 2012 following the successful completion of a leak detection test at each location. Samples were collected from 19 location, including nine sampling probes installed for the 2010 and 2011 investigation and the 10 probes installed between April 9 and May 4, 2012. The samples were collected using batch-certified, laboratory-supplied, 6-liter Summa canisters and matching flow restrictors. The sample collection period was approximately 60 minutes for each sample. Two duplicate samples and one air field blank were collected for QA/QC purposes.

Indoor air samples were collected on June 1, 2012 following the conclusion of the sub-slab vapor sampling program. One sample was collected at each of the same nine locations used to collect indoor air during the 2010 and 2011 investigations. The indoor air samples were collected after normal facility working hours and at night to create a worst-case scenario that reduced dilution from air mixing due to HVAC system and from the opening and closing of doors and passageways (the HVAC did however run intermittently). Each sample was collected into individually-certified, laboratory-supplied 6-liter Summa canisters and matching flow restrictors. The sample collection period was 6 hours per sample. As was performed during the sub-slab vapor sampling, the start and end sampling times and canister pressures were recorded on a sample log sheet. One duplicate and one air field blank were also collected and accompanied the trip blank for QA/QC purposes. All sub-slab vapor and indoor air samples were submitted to Lancaster Laboratories, Inc. for United States Environmental Protection Agency (USEPA) Method TO-15 VOC analysis.

Sub-Slab Vapor and Indoor Air Sampling Results

Data validation was performed on the laboratory results by Tetra Tech to ascertain the usability of the data. The data were determined to be usable and, where appropriate, were qualified as estimated with a "J" designator. Certain non-detection results for 2-butanone, acetone, and methyl acetate were, however, rejected because of laboratory calibration issues. These validated changes to data had no bearing on the findings or conclusions.

The sub-slab laboratory analytical results were screened against Non-Residential MSC_{SG}. Relevant sub-slab sample findings include:

- 34 VOCs were detected in sub-slab vapor samples.
- PCE was detected in all sub-slab samples (including the field duplicates) at concentrations ranging from 14 micrograms per cubic meter (µg/m^3) to 18,000 µg/m^3.
- PCE was the only VOC to exceed its Non-Residential MSC_{SG}, which occurred in one sample collected below Room T9282 (18,000 µg/m^3). The Non-Residential MSC_{SG} for PCE is 14,000 µg/m^3.
- Areal distribution of PCE in the sub-slab is highest below the northern and western portions of Building T9000. Lowest PCE concentrations were reported in the results

for samples collected from below the southern portion of the building (BSOC Room, T9221, and W2ZB). Low PCE concentrations were also detected below the eastern portion of the building.

The indoor air results were screened against the Non-Residential MSC_{IAQ}. Relevant indoor air sample findings include:

- 33 VOCs detected in indoor air samples.
- The following four VOCs exceed respective Non-Residential MSC_{IAQ} in at least one sample: 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,2-dibromoethane, and 1,4-dichlorobenzene.
- PCE did not exceed the Non-Residential MSC_{IAQ} in any sample. PCE was detected at six sample locations at concentrations that ranged from 1.7J µg/m^{3}to 10J µg/m^3. The highest PCE concentration was detected in the sample (T9281A) collected nearest the sump in room T9281. No PCE was detected in the southernmost portion of the building.

Direct comparison of sub-slab to indoor air data can be confounded by the indoor presence of compounds that are used within the structure, especially in an industrial setting. Generally, compounds that are detected in indoor air but are not detected in the underlying groundwater and/or soil vapor are not regarded as products of vapor intrusion. Conversely, if compounds are detected in both indoor air and groundwater and/or soil vapor, the source of the compound in indoor air is less certain.

PCE was used as a tracking compound because it is present in both soil and groundwater. Although PCE was detected at low concentrations in the northern portions of Building T9000, no readily identifiable pattern or cause and effect relationship was observed between the sub-slab vapor and indoor air media. Furthermore, with the exception of the indoor air sample obtained adjacent to the sump (T9281A), little or no correlation was observed between PCE concentrations detected in indoor air from those found immediately beneath the slab. For example, the highest PCE sub-slab concentrations were detected in Room T9282, but PCE was not detected in the indoor air in this room.

The lack of strong correlation suggests that intrusion of sub-slab vapor is strongly influenced by multiple known and unknown variables such as structural characteristics of the slab beneath each room and HVAC-induced air circulation patterns within each room. The lateral collection lines for the sump that underlie a part of the northern rooms within Building T9000 may also serve as potential vapor migration pathways. Other potential vertical pathways between the sub-slab and indoor air environments include the floating floor slabs and equipment anchoring portals (the equipment portal seals vary in quality) that occur in certain areas of the building.

Outdoor (Ambient) Air Results

One outdoor VOC sample was also collected to determine the background quality of ambient air in the T9000 area. This sample was collected northwest of Building T9000, close to Goddard Boulevard and near the WT-MW-15 well cluster. A PCE concentration of 3.4J $\mu g/m^3$ was detected in the sample, which is comparable to most of the indoor air concentrations. It is therefore difficult to correlate this finding to the T9000 building interior data.

Soil Gas Screening Survey

A multi-phase soil gas screening survey was performed outside in the areas north and west of Building T9000 in September 2012 and January 2013. One soil gas sample was collected from each of 42 locations for the survey. A steel rod or small diameter auger was used to advance each borehole to a maximum depth of 4 feet or to refusal. A sample was collected at each location by suspending a GORE® Sorber Module within the borehole, then sealing the borehole with a cork. The sample modules were retrieved after approximately five days and placed into laboratory-provided containers and submitted to W.L. Gore and Associates for VOC analysis according to USEPA Method 8260. The results were reported in units of both mass (µg) and volume ($\mu g/m^3$), which needed to be converted to a concentration volume by making certain assumptions regarding soil porosity and moisture content. For each round of sampling the preliminary data was reviewed and five VOCs or VOC groups were selected for graphical concentration mapping. These compounds included PCE, btex (benzene, toluene, ethylene, and xylenes), 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. The concentration maps are presented in Appendix A of *Phase 5b: Sub-Slab Investigation for T-9000 Area* (Tetra Tech, February 2013) presented in this report in **Appendix N.**

Review of the colorimetric concentration mapping graphics revealed that highest concentrations for most compounds, including PCE, was observed along north side of building between the storm drain line and ramp.

Findings of the Building 9000 sub-slab investigation and soil gas investigation were described in the respective reports as follows:

- PCE was detected at low concentrations in the sub-slab soil, in the water that collects in the sump, and in the indoor air. PCE was detected at higher concentrations in the sub-slab vapor. The distribution of PCE in indoor air correlates only weakly or not at all with the distribution of PCE in the underlying sub-slab environment. In addition, the concentration of PCE in the one outdoor (ambient) air sample was similar to the PCE concentrations detected in most of the indoor air samples.

- The integrity of the slab in the T9000 area is compromised by structures such as sub-slab utilities, drainage pipes, sumps, and floating slabs.

- This investigation has identified that sub-slab concentrations of PCE indicate a potential VI concern in the T9000 area, although it is important to note that there were no exceedances of the PCE MSCIAQ in any of the indoor air samples.

- A soil gas investigation around the northern, western, and southern perimeters of the T9000 building to identify the source of the vapors concluded the relationship between the PCE concentrations in soil and the underlying groundwater plume is not clear. Although the highest concentrations of PCE in the soil were detected just below the surface, they are several orders of magnitude less than groundwater PCE concentrations. PCE was also detected at multiple soil gas locations where no PCE was detected in the soil. These observations suggest that the residual source of PCE vapor may exist in the underlying bedrock and/or groundwater.

Vapor Related Soil Boring Program

A soil boring investigation was conducted on June 5 and 6, 2013 to quantify nature and extent of VOCs in site soil north of the T9000 area. Results for the vapor-phase investigations identified several VOCs in subsurface vapor, including PCE, the dominant component of the site groundwater plume. The full reporting of methods and results is presented in the publication *Technical Memorandum: T9000 Soil Boring Program* (Tetra Tech, July 2013), presented in this report in **Appendix N**.

Direct push drilling techniques (DPT) were used by the drilling subcontractor (Eichelbergers, Inc.) to advance 13 soil borings through the overburden to the top of bedrock. All soil borings were drilled outside of Building T9000.

Soil boring locations were selected by Lockheed Martin to determine following:

- The lateral distribution of VOCs in the soil across the T9000 area and beneath the building slab in the location of the highest sub-slab vapor concentrations.
- The vertical distribution of VOCs in the soil across the T9000 area and beneath the footprint of the building.
- If correlations exist between soil and soil gas VOC concentrations at any given location by sampling soil from areas with high and low soil gas concentrations.
- If rainwater infiltrating through the VOC-impacted soil is creating a perched layer of impacted groundwater that may eventually infiltrate into bedrock groundwater.
- If compromised subsurface utilities are migration pathways and possible source areas for aqueous-phase VOCs at the site, as suggested by soil gas results.

The DPT rig was used to hydraulically push a 4-foot barrel and matching 4-foot long acetate tube liner (macrocore) into the subsurface. At the end of each four-foot run, the barrel was retrieved and the filled macrocore was replaced with a new acetate liner. This procedure was repeated until drilling refusal upon bedrock. Upon completion, the boreholes were filled with dry bentonite and capped with cold patch asphalt.

Soil boring depths ranged from 5-10 feet (averaging 7.2 feet). T9000 area soil consisted of dry to moist, silty fine-grained sand with clay and rock fragments. Overburden groundwater was not encountered. The results for PID field screening yielded low VOC concentrations of 1 - 3 parts per million (ppm).

Three soil samples were collected from each boring; one from the top of the boring, one from the interval with the highest PID reading, and one from the bottom of the boring.

Each sample was collected using Encore® sample equipment and shipped under chain-of-custody procedures to Accutest Laboratories for USEPA TCL VOC analysis according to method SW846 8260. Duplicate and trip blank samples were submitted for QA/QC purposes. Review of the trip blank and full laboratory reports did not identify any data usability issues.

The soil results were screened against PADEP Act 2 soil non-residential direct contact (0-2 feet and 2-15 feet) and soil-to-groundwater residential used aquifer (generic) MSCs. Relevant soil sample findings include:

- Low concentrations of the following VOCs were detected below the regulatory screening criteria in at least one sample: acetone, cis-1,2-dichloroethene (cis-1,2-DCE), methylene chloride, styrene, PCE, toluene, and TCE.

- PCE soil data generally correlates with the PCE levels detected in the immediate vicinity of the exterior ramp at the north side of Building T9000, as defined by the previous investigations. In this area, highest PCE levels in soil were detected at the same locations as the highest soil gas levels: SB-04 (46.8 µg/kg), SB-21 (72 µg/kg) SB-23 (44.8 µg/kg). For comparison, the most stringent Pennsylvania standard for PCE in soils is 500 µg/kg, which is based on the soil-to-groundwater numeric value of 100-times the groundwater MSC. Maximum PCE concentrations were an order of magnitude higher than the other detected VOC concentrations, and occurred in the 0-3 feet interval. None of the other detected VOC concentrations exceeded their respective most stringent standards.

- The relationship between the PCE concentrations in soil and the underlying groundwater plume is not entirely clear. Although highest PCE concentrations were detected in 0-3 feet interval, they are several orders of magnitude less than groundwater PCE concentrations.

- PCE was also detected at multiple soil gas locations where no PCE was detected in the soil. These observations suggest that the residual source of PCE vapor may exist in the underlying bedrock or groundwater.

- Because two planned borings in Room T9282 could not be drilled, a correlation between soil vapor and potential impacts to deeper soil cannot be precisely determined. Soil samples earlier collected immediately below the base of the slab contained low to non-detectable concentrations of PCE.

- TCE concentrations in soil generally correlate with the relatively high TCE soil gas results just outside the northeast corner of Building T9000 and adjacent to the building addition that connects Building T9000 to Building 500. As with PCE, TCE was detected at multiple soil gas locations where it was not detected in soil.

- Detected concentrations of toluene in soil do not correlate with the btex concentrations detected in soil gas. This suggests that the soil boring locations are not within the source area for these compounds.

3.8 Receptor Survey - Regional Well Research

A database search by Environmental Data Resources (June 3, 2008) (**Appendix O**) identified two water supply well locations within a mile of the site. One well was identified as associated with the Valley Forge Casino Resort/Radisson Hotel (formerly Sheraton Hotel) located at approximately 0.7 miles to the west of the site. The report also identified a cluster of wells approximately one mile south of the site is operated by Philadelphia Suburban Water Authority, now Aqua Pennsylvania, as public water supply wells. These wells are identified in **Figure 2-4**. In a follow-up inquiry, Aqua Pennsylvania stated that these wells are used intermittently to supplement the regional public water supply and have not exhibited any PCE contamination. A third water supply well was reported to be within one mile of the site, but that well location is believed to be erroneous because the reported owner, The Kimberton Country Inn, is located well outside the search radius of one mile.

Thirteen structures which are possibly related to a water supply well were photographed by the EESD geologist during the "windshield survey" of properties within a one-mile radius downgradient of the site. Upon further review, it was determined that ten of the 13 structures are related to fire suppression water supplies, storm water management, etc. Therefore, three remaining photographed structures from the survey may be related to groundwater supply wells. Photographs of the three structures of interest are presented in **Appendix P.** The closest of the three structures of interest is located approximately 2,500 feet from the Lockheed Martin property line. No further information beyond the identification in the "windshield survey" has been forthcoming, and these locations have not been included in further characterization efforts such as modeling or in the risk assessment.

In a regional research effort, EESD reviewed 13 environmental site project files in the King of Prussia region as a basis of comparison to the Lockheed Martin site. The research indicated that none of the releases to groundwater discussed in the literature for those 13 sites appear to have the potential to adversely affect Lockheed Martin site groundwater. In all cases, the comparison site release has either been remediated, contained by the groundwater remedy, or local area groundwater (and any residual off-site contaminant plume) discharges to surface water bodies such as the Upper Merion Reservoir (UMR), East Valley Creek, Abrams Creek, Maschellmac Creek, or the Schuylkill River.

Information gleaned from the comparison site project files that were reviewed as part of the Regional Research Report indicate that conditions identified at the site are consistent with those identified within the larger region, thereby supporting site characterization findings. Identified regional hydrogeologic features similar to those at the site are as follows:

- The bedrock lithology that exists beneath the comparison sites is consistent with that encountered on the Lockheed Martin property. As such, a direct comparison can be made between regional site investigation findings and the hydrogeologic conditions observed at the site.

- The hydrogeologic conditions of fracture dominated flow observed within the Lockheed Martin site shallow aquifer are similar to those reported for the Tyson’s Dump and Realen site UST investigation area, which are underlain by the Stockton Formation.

- The reported results for dolomite aquifer testing performed at various comparison sites indicate that high transmissivity (T), hydraulic conductivity (K), and flow velocity (Vf) values were calculated for the Ledger Formation dolomite. These findings are consistent with those values observed for the deep aquifer at the site.

In addition, review of comparison site project files indicates that regional effects from pumping at UMR/Glasgow McCoy quarry are far reaching and the potential exists for a fraction, or all, of the groundwater flow from the site to be intercepted by the pumping's resultant cone of depression.

In the Final Remedial Investigation/Risk Assessment Report for the Stanley Kessler site, the USEPA recognized the existence of a regional VOC plume in the King of Prussia area in the late 1980s and early 1990s. The USEPA also identified and established background concentrations for the following compounds within the plume where it exists in the vicinity of UMR:

- benzene

- 1,1-dichloroethane

- 1,2-dichoroethane
- 1,2-dichloropropane
- TCE

These USEPA-established background concentrations were incorporated, in whole or in part, into the groundwater remedy for the Henderson Road and Stanley Kessler sites located approximately 2.5 miles east of the site. However, the areal limits of the described regional plume were not identified so it cannot be determined if the Lockheed Martin site would be considered within the identified regional plume.

Additional information regarding the regional water supply wells identified above was obtained by Tetra Tech as part of the groundwater modeling effort. That information is contained in the Groundwater Modeling Report summarized in Section 4.2 below.

3.9 Groundwater Elevation Monitoring

Quarterly groundwater monitoring and sampling at the site was initiated in October 2009. In addition to the quarterly groundwater monitoring of water levels, water levels in selected wells were monitored with pressure transducers for the months of March through December, 2011, as described in **Section 3.5** above.

Depth-to-water measurements, using a water level indicator, were recorded quarterly for all screened or open hole monitoring wells and piezometers (WT-MW-3, WT-MW-4, WT-MW-5Dss, WT-MW-5Dls, WT-MW-6, WT-MW-8R, WT-MW-9s, WT-MW-9d, WT-MW-9Dss, WT-MW-9Dls, WT-MW-10Ss, WT-MW-10Sd, WT-MW-10Ds, WT-MW-10Dd, WT-MW-12, WT-MW-15D, WT-VI-201, WT-VI-202, ESA-MW-101s, ESA-MW-101d, ESA-P-101, ESA-MW-102s, ESA-MW-102d, ESA-P-102, ESA-MW-103s, ESA-MW-103d, ESA-P-103, ESA-MW-104s, ESA-MW-104m, ESA-MW-104d, ESA-MW-105Ss, ESA-MW-105Sd, ESA-P-105S, ESA-MW-105Dss, ESA-MW-105Dls, and ESA-P-105D) located on the subject property. Equivalent quarterly depth-to-water values were calculated from piezometric pressures measured in a total of 48 zones in nine monitoring wells (WT-MW-1, WT-MW-2, WT-MW-5, WT-MW-7, WT-MW-11, WT-MW-16SR, WT-MW-16D, WT-MW-17, and WT-MW-18,) containing Westbay System® packers. Calculated water level elevations from selected monitoring wells were used to construct shallow and deep aquifer groundwater elevation contour maps in **Appendix Q**. The elevations used to construct the maps were selected from monitoring wells and intervals believed to best represent the shallow or deep aquifers that were the subject of the maps.

The groundwater elevations were used to interpret the potentiometric surface contours for shallow unconfined groundwater and deeper confined groundwater at the site. The potentiometric contours vary somewhat over time due primarily to the addition of new data points (monitoring wells) and, to a lesser extent, minor climatic variations. The most recent and complete potentiometric contours indicate that the shallow unconfined groundwater flow at the site is inferred to be toward the north-northwest and the deeper confined groundwater flow is inferred to be toward the south. With additional modeling conducted by Tetra Tech base on additional regional head data, the deep aquifer potentiometric contour pattern is now believed to be an artifact of the depth of deep aquifer monitored zones that increase as they follow the south-dipping fault, and does not necessarily indicate a southerly groundwater flow direction. It should be noted that when monitoring well WT-MW-104s was completed on October 24, 2011, the addition of the new data point indicates WT-MW-9s water level elevations are anomalous and the shallow groundwater has a more northerly flow direction than was depicted in previous quarterly groundwater contour maps. The average hydraulic gradients for the more recent quarterly groundwater monitoring events are calculated to average approximately 0.058 foot/foot (ft/ft) for the shallow unconfined aquifer and 0.011 ft/ft for the deeper confined aquifer. The calculated groundwater elevations for all quarterly events are summarized in **Table 2-6**.

Groundwater elevation trend graphs generated from the quarterly monitoring events are included in **Appendix R**. The graphs are divided into two categories, Shallow and Deep, based on which of the two aquifers the well or well zone monitors. The data indicate water level elevations of the shallow aquifer typically in the 150 to 180 feet msl range with the deep aquifer elevations in the 84 to 92 feet msl range. The few zones completed within the confining zone exhibit water level elevations intermediate to those observed in the shallow and deep aquifers.

3.10 Groundwater Sampling and Analysis

Three groundwater sample collection methods have been employed at the Lockheed Martin site. Sampling for screened and open hole monitoring wells is conducted with a submersible pump following the purging of a minimum of one well volume plus stabilization of field-measured parameters. The sampling procedure for monitoring wells with semi-permanent straddle packers involved packer reconfiguration and submersible pumps to purge isolated intervals after reconfiguration was completed but before sampling. The sampling method for monitoring wells containing Westbay System® multilevel groundwater monitoring systems does not require purging prior to sample collection.

The following decontamination procedures were applied to all non-dedicated sampling and monitoring equipment. The decontamination steps followed prior to collecting groundwater samples at each location were:

1. Thoroughly washed equipment with laboratory detergent and potable water, using a brush to remove any particulate matter or surface film.
2. Rinsed equipment thoroughly with deionized or distilled water.
3. Wrapped equipment completely with aluminum foil to prevent contamination during storage and/or transport to the field.
4. All groundwater, field rinse blank and trip blank samples utilized laboratory prepared and provided bottleware.

Quality control sampling consisted of laboratory analysis of field blank samples, trip blank samples, and duplicate samples. In addition, split samples were collected for analysis by a second laboratory. The assessment of the quality control efforts included the validation of field sampling practices and laboratory procedures by a contract data validation firm. Data validation and summaries were included with each quarterly groundwater report submitted to Lockheed Martin, and are available upon request. Beginning with the third quarter 2013 sampling event, the data validation methods were upgraded to include all data necessary to meet the requirements for risk assessment purposes. A quarterly groundwater monitoring report summarizing methods and results was generated for each sampling event and was submitted to Lockheed Martin. The Quarterly Groundwater Monitoring Report for the fourth quarter of 2012, and the first through third quarter of 2013 are presented in **Appendix S** to provide four quarters of recent groundwater sampling results. Other quarterly reports are available upon request.

Separate-phase hydrocarbons have not been detected in any of the monitoring wells during any sampling event completed to date. Additionally, concentrations observed to date are not indicative of separate phase liquids remaining in place. Of the COCs detected in groundwater at the site, PCE is the only organic compound observed at concentrations that has consistently exceeded the rSWHS, and is the primary COC at this site. TCE, bromodichloromethane, Freon 11, Freon 113, and chloroform are organic compounds also consistently observed in groundwater samples at the site, but of these only TCE has ever exceeded the rSWHS, and did so only on a few occasions early in the site investigation (see **Table 2-1** and **Table 2-2**). Inorganic analytes of barium, manganese, iron, arsenic, lead, chloride, and nitrate nitrogen have also exceeded their respective rSWHS. Only barium and manganese consistently exceed the rSWHS, and the exceedances are minor and are likely background concentrations originating from the natural composition of the site lithology. A groundwater analytical results summary of compounds detected during quarterly sampling events is presented in **Table 2-2**. The laboratory analytical certificates for the last four quarterly sampling events are presented in **Appendix T**. Laboratory certificates for other sampling events are available upon request.

The horizontal and vertical distribution of PCE, based on concentrations observed in the various monitoring well sample locations, provides evidence of plume configuration and transportation mechanics. Quarterly PCE isoconcentration contour maps generated since October 2009 have been consistent with the 2012 and 2013 maps presented in **Appendix U.** The concentrations from selected monitoring wells and locations that are most likely to be representative of the designated shallow and deep aquifers were used to construct the respective shallow and deep aquifer isoconcentration contour maps. PCE concentrations in the upper aquifer indicate a clearly defined source area near WT-MW-2 and a plume core of higher concentrations indicating groundwater transport is to the northwest. Detections of lower concentrations are located more broadly across the site. The broad orientation of the apparent non-detect contour may be indicative of groundwater dispersion, or anisotropy in the fractured Stockton Formation. But the absence of detections in monitoring wells farthest south of the apparent source area remains consistent with the presumed northward groundwater flow in the shallow aquifer. Observed horizontal concentration gradients between monitoring wells are consistent with the presence of a single major source area near WT-MW-2, with no obvious secondary source areas. This is further supported by observations during the pumping test, described in **Section 3.4.4,** where PCE concentrations declined by a factor of four during the pumping phase of the constant rate test. Concentrations then rebounded shortly after pumping before declining again two days following the test. These data suggest that WT-MW-15S is located downgradient of the PCE source area and that the PCE plume is limited in extent.

Groundwater concentration contours created for the deep aquifer, which is present in both the Stockton and Ledger Formations, indicate highest concentrations at the north edge of the site and consistently decreasing concentrations in the southerly direction. This pattern is not interpreted as the presence of a second source for the deep aquifer, but indicates the area where the northwest trending shallow aquifer plume encounters the northern limit of the confining zone, and with a downward gradient, transitions into the deep aquifer.

Vertical groundwater isoconcentration contours for PCE are presented in north-south and east-west cross sections (**Figure 3-8**) through the plume area in **Figure 3-9** and **Figure 3-10**, respectively.

Trend graphs of groundwater concentrations of PCE versus time are presented in **Appendix V.** Evaluation of groundwater concentration trends to date should be interpreted with the consideration that drilling has occurred periodically from April 2008 to October 2012. This is significant in light of site hydrogeology consisting of a downward hydraulic gradient in the presence of two aquifers separated by a confining zone. Drilling in the presence of the downward gradient and confining layer results in temporary disturbance to the equilibrium of the hydrogeology despite best efforts to minimize the draining of the upper aquifer into the lower aquifer.

The concentration trend graphs, historic groundwater concentration tables, and isoconcentration contour maps, when compared with the aquifer identified in **Table 3-1**, can be interpreted to indicate the following:

- Groundwater PCE concentrations are higher in samples collected from the shallow aquifer than concentrations observed in samples from the deep aquifer, with samples collected from the confining zone typically exhibiting the lowest concentrations within a single boring.

- Groundwater PCE isoconcentration contours for the shallow aquifer consistently show the highest values in monitoring well WT-MW-2 Zone 1, near the presumed source area located between monitoring wells WT-MW-1 and WT-MW-2, and show decreasing concentrations in the downgradient direction. This pattern defines an elongated plume extending to the northwest.

- Groundwater PCE isoconcentration contours for the deep aquifer consistently show the highest values at monitoring well WT-MW-8R with monitoring well locations to the south of WT-MW-8R exhibiting lower concentrations, with concentrations declining the farther south the location is within the deep aquifer. Although the deep aquifer locations are limited, they indicate the deep aquifer plume is more dispersed compared to the shallow aquifer plume.

- Groundwater PCE concentrations observed in samples from the southernmost shallow and deep aquifer locations are consistently close to, or below, laboratory detection limits.

3.11 Matrix Diffusion Sampling

Matrix diffusion sampling was performed to assess the distribution of PCE and selected other chlorinated VOCs within the bedrock matrix beneath the north-central portion of the Site. Rock samples were collected from rock cores drilled from October 11 to December 9, 2011. The work entailed the retrieval of 695 linear feet of rock from 765.5 drilled feet of core. The core was collected from four boring locations, WT-MW-15S, WT-MW-15D, WT-MW-16S, and WT-MW-16D, in the Building 600 area.

A total of 389 rock matrix samples were submitted to various laboratories for quantitative VOC and rock physical property testing. The results for physical property analysis were then used to calculate the VOC concentration of porewater within the bedrock matrix.

Stone Environmental, Inc. (Stone) was subcontracted to performed all sample preparation, physical and chemical analytical testing, and porewater concentration computations. The complete findings for the matrix diffusion sampling effort discussed here are presented in the report titled *Rock Core Sampling and Analysis at the LMC Integrated Systems Valley Forge Facility, King of Prussia, PA Revised Data Report 112505-R* (Stone, April 6, 2012). A complete copy of the Stone report is presented in **Appendix W**.

3.11.1 Collection

Surface casings were installed by the drilling subcontractor through the overburden to specified depths within bedrock (between 19 and 219 feet bgs) at each location to seal-off the unconsolidated overburden, possible shallow perched groundwater, and to reduce the likelihood of vertical migration of contaminants from the shallow aquifer to the deep aquifer.

Rock core samples were collected using HQ-size core barrels, which measure 5-feet in length by 2.5-inches in diameter. A triple-tube core barrel was utilized to minimize disturbance to the core samples. Core samples were retained within a second innermost stainless steel split tube that was located within the inner tube.

Upon removal from the stainless steel split-tube, the rock core was transferred to a PVC tray lined with disposable aluminum foil. Each sample consisted of approximately 0.1 feet of material that was broken off from the core using a hammer and chisel. Rock samples were preferentially collected from fracture surfaces and from the intervening unfractured rock matrix. Upon collection, each rock sample was wrapped in aluminum foil and then taken to the on-site sample processing area. Each sample was subsequently unwrapped and placed into a stainless steel trimming cell where the outer portion of the sample that had been exposed to the core barrel was removed, again using a hammer and chisel. The processed sample was then placed into a stainless steel cell and crushed using a hydraulic press prior to transfer into pre-labeled 40 mL volatile organic analysis (VOA) vials preserved with purge-and-trap grade methanol. All non-dedicated sample collection equipment was decontaminated using a 5-step process prior to the next use.

The sample vials were prepared in the field at the beginning of each day. Prior to sample shipment, the vials were labeled and weighed using a calibrated scale before adding the preservative, and then again after the addition of the crushed rock. A total of 389 rock matrix fragment samples were transported under chain of custody (CC) documentation to the Stone laboratory in Barre, Vermont for VOC analysis. QA/QC samples included 18 field duplicates, 50 equipment blanks, 18 methanol blank samples, and 23 trip blanks. Laboratory QA/QC included 15 matrix spike and matrix spike duplicate samples. VOC analysis was performed between October 21, 2011 and January 6, 2012 according to University of Guelph standard operation procedure (SOP), *Microwave Assisted Extraction (MAE) of Volatile Organic Compounds from Rock Samples* (SOP SEI-10.17.0).

Methanol extracts were analyzed for the following nine target VOCs: PCE, TCE, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trans-1,2-dichloroethene, cis-1,2-dichloroethene, chloroform, carbon tetrachloride, and 1,1,1-trichloroethane. The reporting levels were raised for several core sample batches associated with WT-MW-15D due to laboratory-derived PCE interference. Other minor QA/QC deficiencies were also noted in the QA/QC samples relative to associated laboratory SOPs and National Environmental Laboratory Accreditation Conference standards. Corrective action measures and the observed QA/QC deviations are further discussed in the Stone report.

3.11.2 Property Parameter Determination

A total of 37 intact core samples, each measuring from 0.5 to 0.8 feet in length, were selected for physical property analysis following the completion of rock matrix VOC sample collection. Selected rock physical properties included matrix porosity (ø), water content (%), wet rock bulk density ($P_{b(wet)}$), dry rock bulk density ($P_{b(dry)}$), specific gravity, and TOC. Each sample was wrapped in saran wrap upon collection to limit moisture loss prior to and during shipment under CC documentation to Golder Associates in Mississauga, Ontario for analysis. The minimum, maximum and average values for these parameters are presented in Table 2 of the Golder Associates (July 2012) report titled *Matrix Diffusion and Hydraulic Conductivity Testing on Rock Core Samples* presented in **Appendix X**.

Five core samples were selected for chloride diffusion and permeability analysis. The selected six-inch core lengths were wrapped in saran wrap, aluminum foil and shipped to Stone Lab for analysis using the University of Guelph *Rock Core Chloride Sample Collection* SOP.

With the chloride SOP, a 1-inch section from each core is processed by removing the outer portion of the rock that had contacted the core split tube, then crushing the processed sample in the same method used for VOA sample processing. The crushed sample was placed into a 40 mL VOA vial with 15 mL deionized water. Using a calibrated scale, the labeled vials were weighed before the deionized water was added and again after the addition of crushed rock. The samples were submitted to ALS Group laboratory testing services in Waterloo, Ontario.

The tests indicate chloride diffusion coefficient values ranging from $<0.1 \times 10^{-6}$ cm^2/s to 0.45×10^{-6} cm^2/s at 23°C. The corresponding rock matrix tortuosity factor values range from <0.01 to 0.03. Values obtained for total porosity of the rock core specimens range from 3% to 12%. The total organic carbon content values obtained for the rock core specimens range from 0.05% to 0.22% of the dry mass of the specimen. The saturated hydraulic conductivity values obtained for the rock core specimens using the flexible wall parameter method (ASTM D5084-00) are all less than 1×10^{-10} cm/s. This value is at the lower limit of the measurable range for the test method used. Details of how these rock property values were derived are presented in the full report by Golder Associates (July 2012) which can be found in **Appendix X** of this document.

3.11.3 Calculations

Porewater VOC concentrations were calculated for each of the 389 rock matrix medium sample locations. Porewater concentrations were calculated in a two-step process, which first included finding the VOC concentration within the bulk rock sample (C_t). This calculation used the analysis of the methanol extract (C_{MEOH}), the mass of the crushed rock (M_{Rock}), and volume of methanol (V_{MEOH}) as follows:

$$C_t = (C_{MEOH} \times V_{MEOH})/M_{Rock}$$

The result for bulk rock sample VOC analysis (C_t) was then used in conjunction with the findings for bulk density and porosity physical property testing, along with a calculated soil-water coefficient (Kd) in the following formula to calculate each matrix porewater concentration that is reported in µg/L:

$$C_W = (C_t \times P_{b(wet)})/(K_d)(P_{b(dry)}) + ø$$

This equation assumes that the matrix porosity (i.e., primary porosity) is 100% saturated with water and that the VOC mass occurs in only the dissolved and sorbed phases (no non-aqueous phase liquids present). The soil-water coefficient (Kd) was calculated using the organic carbon portioning coefficient (K_{OC}) for each compound, which was obtained from the literature (Pankow and Cherry, 1996 or USEPA, 1999); and the fraction of organic carbon (f_{OC}), which in turn was obtained through physical property analysis using the following equation: Kd = (K_{OC})(f_{OC}). This coefficient assumes that the sorption is entirely dependent upon solid phase organic carbon in the rock matrix.

Average values for the physical properties of porosity (ø), bulk density (P_b), and f_{oc} were used in the calculations used to derive porewater VOC concentrations.

The tabulated results presented in the Stone report were compiled into VOC concentration summaries for the rock matrix (Table 4) and porewater (Table 5) media. The referenced report and associated tables are presented in **Appendix W**. Relevant observations gleaned from the tabular summaries presented here and in the Stone report include:

- PCE and TCE were the only target VOC compounds that were detected in the results for both sample media.
- PCE and TCE were most prevalent in the results for shallow aquifer groundwater monitoring wells WT-MW-15S and, to a lesser degree, WT-MW-16S where the bulk of the PCE mass is located between 35 feet bgs and 100 feet bgs in each well. These findings are consistent with the site-wide results for groundwater sampling.
- PCE and TCE detections in monitoring well WT-MW-15S start at 29' bgs but the real mass starts at 35' bgs and extends consistently to ~ 88' bgs. There is additional mass at 96 – 102' bgs which is probably associated with transport in more isolated fractures but the mass is certainly starting to tail off and almost all results are non-detect below 121' bgs indicating the presence of an effective confining layer.
- PCE was detected in 109 of the 389 samples (28%), while TCE was detected in only 19 samples (4.9%).
- PCE and TCE concentrations generally exceeded the rSWHS (5µg/L), where detected.
- There is almost not PCE or TCE detected in the deeper zones tested, and where occasional detections were made, they appear close to fractures.

The observations described above indicate that dissolved PCE mass exists in the fractured rock matrix between approximate depths of 35 to 100 feet bgs that would be recalcitrant should some type of pump-and-treat or in-situ remediation be attempted.

3.12 Groundwater Modeling

Site and regional hydrogeologic data were used to perform three-dimensional finite-difference computer modeling to enhance the understanding of site and regional groundwater flow, and to evaluate potential groundwater flow paths via particle tracking from the site to various public water supply (PWS) receptor locations. The model also provides a basis to perform simple dilution calculations to estimate PCE concentrations in groundwater at the Lockheed Martin site boundary that are protective of PWS water quality for various receptors under different scenarios. The potential receptor locations considered in the model include, among others, the nearby Radisson Hotel well, the Cabot well, the UMR, and the Schuylkill River.

Three-dimensional finite-difference groundwater flow and particle tracking models were created using the USGS MODFLOW2000 (MODFLOW) and MODPATH programs. Software programs including ArcMap, a geographical information system (GIS) program; Mining Visualization System (MVS), a data interpolation and visualization program; and Groundwater Vistas (GWV), a modeling graphical interface program, were also used to facilitate data analysis, model input preparation, and presentation of the model results.

A complete presentation of the model findings summarized here was presented in the *Groundwater Modeling Report* (Tetra Tech, 2013). A complete copy of the Tetra Tech report is presented in this report in **Appendix Y**.

In order to simulate three-dimensional groundwater flow, a geologic model was created to mimic site and area hydrogeologic conditions for input into the MODFLOW finite-difference code. The model domain encompasses 33 square miles around the site within Chester and Montgomery counties (**Figure 3-11**). The model domain is bounded to the north and east by the Schuylkill River, to the south by a groundwater divide underlying a metamorphic rock ridge of the Piedmont Upland Province, and to the west by another flow divide based on surface water drainage patterns. The geologic framework for the model was derived from

Lockheed Martin site drilling data, geologic unit descriptions, and strike and dip data culled from readily available literature sources.

3.12.1 Assumptions, Input Variables and Assumptions

A review was performed of available site data including hydraulic head responses from site monitoring wells and PWS wells, groundwater flow maps, site aquifer testing data, PWS extraction well pumping data, and published hydraulic parameter characteristics for model domain rock types and area meteorological information. This was done to select the most relevant and highest confidence data for input into the model.

Hydraulic properties, primarily horizontal and vertical K, T, and S values of the geologic formations in the model area, were derived from site slug and aquifer pumping tests in the Stockton Formation and obtained for the carbonate and metamorphic formations from various literature sources.

A water budget was performed to account for the average annual precipitation, recharge into bedrock, and withdrawal due to PWS pumping within the model domain. Information obtained from Aqua America water company (Aqua), the PADEP and others revealed that approximately 12.3 million gallons per day (MGD) is removed on a daily basis from the following wells that result in the net daily discharge to surface water value used in the model of 7.8 MGD: UMR, Cabot, Valley Forge Casino Resort/Radisson Hotel, Babb (Babb's), Upper Merion well, and Tredyffrin PWS wells, the Glascow/McCoy quarry, and the Stanley Kessler Superfund site pump and treat remediation system.

Groundwater flow patterns and particle tracking was inferred using a combination of the following five recent and historical hydraulic head data sets:

- 82 Site monitoring well intervals from October 2012.
- 48 UMR area wells within the eastern portion of the model domain measured in mid to late 1980s (Christian, 1989).
- 14 wells in eastern Chester County (Sloto, 1987).

- 5 heads measured in 2013 from the McCoy quarry pit sump (Glasgow, 2013) and estimated for 2013 in the UMR.

- 3 wells adjacent to McCoy quarry, circa 2012 (Glasgow, 2013).

These hydraulic head data were merged into a single target hydraulic head data set for steady-state model calibration. Although not ideal, this merger of hydraulic head data is appropriate given the significant spatial and temporal parameter data limitations. Drawdown data from the Stockton Formation aquifer test obtained in April 2013 were used to create a data set of target drawdown measurements for transient model calibration.

3.12.2 Model Construction

MODFLOW is a widely used and accepted program that was selected because it can simulate transient or steady-state groundwater flow and account for confined or unconfined conditions between model layers. GWV, version 6.22 (Environmental Simulations, 2011) was used to prepare all data sets and was also used for processing model results.

The finite-difference model is comprised of a grid consisting of 22 layers, each having 223 rows and 276 columns. The dimension for each of the 1,354,036 individual cells varies from 25 by 25 feet to 703 by 703 feet in areal dimension. The cell thickness for uppermost layers 1 to 4 was determined by evenly dividing the difference between the ground surface elevation and 15 feet amsl (elevation at the bottom of layer 4). By contrast, layers 5 to 22 are a uniform 30 feet in thickness.

The base of the geologic model was set at an elevation of -700 amsl and the base of the groundwater flow model elevation was set at -525 feet amsl (this equates to an approximate depth of 750 feet bgs at site) to capture all but the *di minimis* quantities of water expected to be circulating through system at this depth. Geologic units were assigned to individual cells by importing data from the three-dimensional geologic model.

Internal and external model boundary conditions were chosen, where possible, to coincide with natural hydrogeologic features. These model boundary conditions include:

- Recharge was applied to model layer 1.

- Surface water features designated as 'river' nodes, are where groundwater discharges to surface water or surface water recharges to groundwater, depending on the gradient (e.g., Schuylkill River and Valley Creek).

- Surface water features identified as 'drain' nodes, simulate points of groundwater discharge only. Drain nodes were all other streams within the domain: Trout Creek, Crow Creek, Matsunk Creek, and their tributaries.

- Finite-difference blocks north and east of the Schuylkill River were modeled as no-flow cells by setting the hydraulic conductivity to zero.

- Groundwater withdrawals were simulated for UMR and McCoy quarry in their excavated volumes and by pumping groundwater from a single well node within these high K zones. Pumpage from the other wells (Babb, Cabot, Stanley Kessler, Radisson, Tredyffrin, Upper Merion, and site aquifer testing well WT-MW-15S) was simulated using the MNW2 package. Well construction information was used to determine the pumping well completion depth intervals (layers) in the model.

3.12.3 Calibration

Model calibration, also known as history matching, involves using trial-and-error or an automated procedure to compare simulated to measured data. This information is then used to refine model parameter estimates so that the model more closely estimates real world conditions. For this site model, approximate steady-state and transient calibrations were made by trial-and-error using available site data, regional hydraulic head data, and site aquifer test drawdown data. Numerous simulations using many hydraulic property values and boundary conditions were run prior to selecting the series of representative model runs that were presented in the report.

Transient calibration involved simulating drawdowns caused by the constant rate pumping of onsite shallow Stockton Formation well WT-MW-15S at 3.96 GPM for 20.4 hours from April 8 to 9, 2013. The simulation results were compared to actual drawdown observations for calibration.

Calibration statistics involved several mathematical computations that provided an estimate of the percent error between the simulated and observed hydraulic heads, as reported as the absolute residual mean (ARM) and scaled ARM for the data set comparison. ARM is calculated as the absolute difference (or error) between the simulated and field measured head values while the scaled ARM is calculated by dividing the ARM by the range in measured values. Modelers generally attempt to obtain a scaled ARM of less than 10 percent (10%).

The scaled ARM of all simulated versus observed heads decreased from 6.9% to 4.8% (ARM from 33.1 to 23.1 feet). Other notable findings for steady-state calibration statistics analysis included:

- 82 Lockheed Martin site monitoring wells: scaled ARM decreased from 26% to 13%; ARM from 30.3 to 14.9 feet.
- UMR/McCoy quarry: scaled ARM decreased from 126% to 17%; ARM from 232.3 to 31.8 feet.
- McCoy quarry monitoring wells: scaled ARM decreased from 110% to 33%; ARM from 70.3 to 21.2 feet.
- 14 western wells: scaled ARM increased from 14% to 17%; ARM from 15.9 to 19.9 feet.
- 48 UMR-area wells: scaled ARM increased from 14% to 17%; ARM from 32.8 to 37.8 feet.
- WT-MW-15S aquifer test wells: scaled ARM decreased from 16% to 11%; ARM from 1.77 to 1.20 feet.

Particle tracking plots were created which simulated PCE-impacted groundwater flow from the northern portion of the site (originating from model layers 2, 3, 4, 5, 8, 10, 12, 14, and 16) that extended to discharge/capture locations. These plots revealed that for the initial run, simulated groundwater flows from the northern portion of the site to the UMR. In the calibration run, the noted modifications in hydraulic conductivity to the carbonate and Stockton Formation rocks, respectively, resulted in groundwater flow from the northern portion of the site to both the UMR and Schuylkill River.

Uncertainties are associated with the quality of the calibration data because of the wide time range associated with hydraulic head measurement (1980s to present) and variation in head and drawdown measurements made at certain nearby locations. However, the calibration run is considered a reasonable estimate of site and area conditions given the purposes and limitations of the study.

3.12.4 Analysis

Sensitivity analysis simulations were conducted to evaluate the effects that changes in flow model parameters would have on simulated groundwater flow patterns. Eight exploratory simulations were performed that used different combinations of hydraulic conductivity, recharge rate, and boundary conditions. Calibration statistics for sensitivity runs #1 to #8 were comparable to the statistics for the steady-state calibration run.

Varying the hydraulic conductivity ratios in the carbonate units had a marked effect on the simulated flow directions of particles released from the north-central portion of the site, as summarized below:

- Anisotropy of 2:1 and 3:1: all particles flow to the north and northeast to the Schuylkill River.
- Anisotropy of 5:1: particles flow to both the Schuylkill River and the UMR. None flow to the Cabot well.
- Anisotropy of 8:1: all particles flow to the UMR.
- A small percentage of particles were captured by the Cabot well (Sensitivity Run #5) where like K values (Kx, Ky, and Kz of 12, 2.4, and 12 ft/d, respectively) were used for all three carbonate units, except near the UMR and McCoy quarry (PZ#14 and #15) where differing K value ratios were used, and in a heterogeneous zone to the northwest of the site (PZ#13) where the Kx, Ky, and Kz of the Ledger Formation were all changed (45 ft/d).

Increasing recharge rates for downstream portions of Trout Creek west of the site and Crow Creek east of the site to represent leakage from these features, which were modeled as MODFLOW drain nodes rather than river nodes, had predictable effects. Small increases in recharge along Trout and Crow Creeks increased and focused flow particle movement northward between these creeks to the Schuylkill River. Sufficient additional recharge simulated to an area along one of the creeks, but not the other, resulted in particle capture by the Cabot well with recharge from Crow Creek or by the UMR with recharge from Trout Creek.

3.12.5 Analysis

A simple dilution analysis was performed to calculate PCE concentrations at the downgradient site boundary and in the Stockton Formation in the impacted area of the site that will not raise PCE concentrations in PWS sources (Cabot well, the UMR, and the Schuylkill River) above the rSWHS (5 µg/L).

The steady-state calibration run was used to calculate groundwater outflow rates moving away from the site from each model layer at the perimeter of a rectangle, or contaminant transport window (CTW), that surrounds an approximation of the PCE-contaminated zone at the site. These flow rates were then used to perform a mixing analysis for the Schuylkill River, UMR, and Cabot well. In each saturated layer, the simulated groundwater flow is away from the site across the north and east ends of the CWT. Simulated flow rates and the proportion of eastward versus northward flow increases with layer depth, evidently due to the substantial downward flow component at the site and the high transmissivity of the Ledger Formation. A second approach involved using the calibration run to calculate the steady-state groundwater flow through rate through the Stockton Formation into the Ledger Formation within the area of interest and then to perform the dilution analysis.

A total of 11 dilution calculations were performed, assuming that pumping was performed from one of the three potential PWS receptors, five each for the UMR and Cabot well, and one for the Schuylkill River. For each calculation the PWS pumping rate and assumed PCE concentration derived from other sources were held constant; variables included the amount (or contribution) of CTW-derived groundwater received by the PWS (in GPD) and the route by which groundwater flows through and out of the CTW.

Each PWS source captured some groundwater flow from the site in at least one of the steady-state scenarios. The range in maximum flow-rate weighted average calculated PCE concentration values in site outflow that would not exceed a diluted concentration of 5 µg/L at each respective PWS source was as follows:

- UMR (117 to 2,344 µg/L).

- Cabot well (38 to 753 µg/L).

- Schuylkill River (33,816 µg/L)

Comparison of these findings in conjunction with all of the information contained within the groundwater report suggests that a flow-rate weighted average PCE concentration of 300 µg/L in groundwater within the entire length and combined aquifer thickness at the downgradient edge of the PCE-impacted area of the site will not raise PCE concentrations in PWS receptors above the 5 µg/L regulatory criterion. It should also be noted, however, that these calculated results are not exact and may be subject for one or more of the following factors:

- The actual limits for the CTW through which contaminated groundwater flows may be much smaller that used in the calculations.

- The rate of groundwater flow through the CTW is estimated and therefore uncertain; only a portion of the groundwater passing through the CTW is expected to discharge to any of the PWS receptors.

- Historical detections of PCE and other chlorinated ethenes in the UMR have been attributed to nearby USEPA Superfund sites, and not Lockheed Martin.

- The existing distribution of PCE at the down gradient edge of the site and adjacent offsite areas is not well defined. This adds uncertainty to the interpretation and prediction of directions and rates of offsite groundwater flow.

- Other than those described in Section 4.2.2 above, the dilution analysis does not account for other potential and yet unknown hydraulic sinks present downgradient from the site that may intercept site-derived groundwater flow that might otherwise be captured by the Schuylkill River, the UMR, or Cabot well. The allotted groundwater withdrawals are based on information obtained from a comprehensive well search of the region.

- Groundwater flow, particularly in carbonate rocks, occurs via a complex three-dimensional network of fractures that are not well-defined. The presence and orientation of preferential flow pathways associated with karst (e.g. enlarged fracture openings) in the site area, which are not explicitly represented in the groundwater flow model, can significantly influence groundwater flow directions and rates.

- Natural attenuation mechanisms can significantly reduce contaminant concentrations and mass flux to receptors and delay arrival times.

4.0 SITE CONCEPTUAL MODEL

The Site Conceptual Model description begins with the release of PCE to the environment in the vicinity of monitoring wells WT-MW-1 and WT-MW-2 by a mechanism not currently understood. There is sampling and anecdotal evidence which indicates that small amounts of PCE were released to surface soil in the area of the former AST. The released PCE appears to have affected site soil very little before it entered the groundwater and diffused into the saturated rock matrix over time. Over time, fracture flow transported the PCE-containing groundwater northward and downward. A schematic diagram of this process is presented in **Figure 4-1**.

A normal fault that parallels a portion of the northern site boundary and dips to the south also serves as a contact between the Stockton and Ledger Formations in that area. The fault separates the dolomite, which outcrops immediately north of the Site and adjacent to the south side of the PA Turnpike, from the mixed Stockton Formation rocks to the south. Somewhere in the vicinity of WT-MW-1, at a depth of approximately 500 feet bgs, the dolomite contact is no longer defined by the fault but rather by the unconforming contact between the Stockton and Ledger Formations. The unconforming contact between the formations dips to the north and, therefore the Stockton Formation thins to the south and east until the contact reaches the surface.

Interpretation of data from water level elevations, groundwater concentrations, and borehole geophysics has identified three zones beneath the Lockheed Martin site. They are:

- Shallow aquifer: a water table aquifer located within the Stockton Formation.
- Confining layer: a low transmissivity layer evidenced by shallower water levels measured above, and deeper water levels measured below this layer.
- Deep aquifer: a confined or semi-confined aquifer comprised of Stockton Formation sandstone and siltstone and underlying Ledger Formation karstic dolomite.

The shallow and deep aquifers are separated from one another by the confining layer within the Stockton Formation. Groundwater flow within the shallow aquifer is north-northwest to north-northeast, and consistent with surface topography, which slopes steeply in a generally north direction towards the PA Turnpike. Shallow aquifer flow intersects the ground surface at a seep at the base of an on-site sedimentation basin located immediately east of monitoring well WT-MW-8R. Shallow aquifer groundwater contours indicate that groundwater flows from the source towards the basin with groundwater emerging as a surface spring at the southeast edge of the bottom of the sedimentation basin at an elevation of approximately 157 feet msl.

Data show the horizontal groundwater gradient within the deep aquifer is very flat, making flow direction difficult to discern. The piezometric gradient of the deep aquifer is very sensitive to slight variations in measurements between points or over time, and an apparent downward gradient adds complexity to determining direction because of different monitoring depths in various wells. Northward and downward gradients within the shallow aquifer are theorized to cause groundwater to move northward where it encounters more fractures within the confining unit as it approaches the fault. The shallow groundwater migrates across the confining layer via the fractures, and then enters the deep aquifer that connects to the karst solution features of the Ledger Formation. The presumed flow direction of the deep aquifer is to the north toward the Schuylkill River. The potential exists for ultimate deep flow to the east. The force creating the induced gradient toward the east is the pumping from UMR and Glasgow McCoy Quarry. The reservoir and quarry, and published regional cone of depression created by their pumping, are shown on **Figure 2-4.**

The principal VOCs within the Lockheed Martin groundwater plume are PCE and, to a lesser extent, TCE. The highest PCE concentrations within the shallow aquifer are found in the general vicinity of the Building 600 source area, whereas highest PCE concentrations within the deep aquifer have been detected north of the source area in the vicinity of monitoring wells WT-MW-8R and WT-MW-18. Site borehole geophysical data and measured hydraulic heads indicate that downward vertical gradient conditions exist at the site. The interpretation of horizontal PCE concentration gradients in the shallow and deep aquifers and observations of lowest concentrations in vertical well profiles occurring in the confining zone, result in the conclusion that the majority of the shallow groundwater at the site transitions to the deep aquifer at the northern end of the site.

With groundwater flow to the north, potential receptors considered are ecological receptors at the sedimentation basin at the north end of the site and the Schuylkill River, and public water supply receptors at the Upper Merion Reservoir, and to a lesser extent, the Radisson Hotel and Cabot Wells. An additional receptor pathway is through vapor intrusion originating from impacted groundwater. Vapor intrusion is primarily a concern for Buildings T9000 and 600 which are closest to the highest groundwater concentrations of PCE. Remedial alternatives for the vapor intrusion pathway to Building T9000 are currently under consideration and a sub-slab depressurization is proposed for Building 600.

Groundwater modeling and risk assessment calculations have generated a site specific numerical value of 300 µg/L at the point of compliance that would be protective of the human health groundwater exposure pathway. Current monitoring wells WT-MW-8R and WT-MW-18 are considered the most appropriate compliance well locations.

Cross sections depicting the groundwater plume beneath the site through the shallow and deep aquifers are presented in **Figure 3-9** and **Figure 3-10.**

5.0 RISK ASSESSMENT AND PATHWAY ANALYSIS

Tetra Tech prepared a risk assessment report (RAR) for soil and groundwater at the Lockheed Martin Valley Forge facility located in King of Prussia, Pennsylvania (**Appendix Z**). Based on the risk assessment, soil contamination at the site had been managed adequately so that no human health or ecological risks associated with exposure to soil at or in the vicinity of the former tank remained after remediation. The RAR also supports the conclusion that the potential pathway of direct contact with site groundwater does not pose a risk to current onsite receptors because of the depth to groundwater. In addition, groundwater does not pose a significant health risk to current offsite receptors since the average PCE concentration at the downgradient edge of the site is less than the level (300 µg/L) that groundwater modeling determined could potentially impact the nearest downgradient public drinking water source. The 300 µg/L point-of-compliance Site Specific Standard for PCE was derived through groundwater modeling using a conservative dilution-only approach (Tetra Tech, 2013c) and the assessment of associated risk. This Site Specific Standard for PCE also assumed that known existing potable water sources represented potential exposure pathways.

To assess future exposure to groundwater, potential off-site receptors were evaluated as a potable water pathway sourced from a hypothetical well located offsite. The evaluation used site-wide average concentrations from shallow and deep groundwater aquifers and average concentrations from individual point-of-compliance wells MW-8R and MW-18 completed in the shallow and deep aquifers, respectively. The evaluation indicated that if future offsite receptors (industrial workers or residents) have direct contact with deep groundwater, cumulative risks based on average site-wide deep groundwater concentrations could exceed PADEP's target risk level of 1×10^{-5} (equivalent to a one in 100,000 risk of developing cancer in one's lifetime). Arsenic is the principal contributor to this risk; however, its concentrations are less than the maximum contaminant level and the PADEP Act 2 rSWHS, so it is not considered a COC. Based on the point-of-compliance wells, exposure to PCE resulting from a potable well for a future offsite resident would exceed unity for the noncancer hazard due to ingestion and dermal contact. Therefore, only PCE is considered a COC in groundwater under future conditions for offsite receptors. Post-remediation risk management activities to control/limit future use of potable groundwater would mitigate the potential risks posed by PCE.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Interpretation of the site characterization investigation, quarterly groundwater monitoring, and groundwater modeling has lead to the following conclusions and recommendations.

6.1 Conclusions

Borehole lithology, borehole geophysics, packer testing, and groundwater sampling have provided data on site geology and groundwater that, when interpreted, result in the following conclusions.

- Over four years of groundwater sampling results confirm PCE is the contaminant of concern at the site.
- Groundwater flow is dominated by fracture flow in the shallow aquifer and by fracture and solution features in the deep aquifer.
- Groundwater flows to the north northwest in the shallow aquifer with flow direction in the deep aquifer less certain but probably northward.
- Shallow and deep aquifers exhibit downward gradients and are separated by a confining zone which sustains a strong downward gradient between the two aquifers.
- Vertical concentration profiles in monitoring wells with the Westbay System® indicate the confining zone has lower contaminant concentrations than the aquifers above and below.
- Horizontal distribution of PCE concentrations in site groundwater indicate the source is located somewhere close to monitoring well WT-MW-2, and most likely between monitoring wells WT-MW-2 and WT-MW-7.
- Soil gas surveys at the site identified limited areas of moderately elevated PCE concentrations. However, subsequent soil borings did not identify a concentrated source in the overburden.
- Evaluation of rock matrix pore water concentrations of PCE by Stone Environmental indicates a reservoir of PCE, in a dissolved state, contained in the rock matrix above the confining layer as the presumed source area near monitoring well WT-MW-2.

- PCE concentration trends over time are not consistent across the site, but both upward and downward trends can be discerned in some monitoring wells or zones. However, drilling has been ongoing at the site during much of the quarterly sampling events completed to date, and these activities have been shown to disturb the aquifers in ways that could impact volatile compound concentrations.

- A normal fault exists at the site which has a surface expression that runs roughly parallel to, and just south of, the Pennsylvania Turnpike.

- Highly transmissive zones exist in aquifers at the site in the form of highly fractured zones in the sandstone, which appear to be associated with the fault, and solution features in the dolomite found at depth beneath the site.

- During the long term pumping test, PCE concentrations declined by a factor of four during the pumping phase of the constant rate test. Concentrations then rebounded shortly after pumping before declining again two days following the test. These data suggest that WT-MW-15S is located downgradient of the PCE source area and that the PCE plume is limited in extent.

- Modeling indicates groundwater from the site most likely flows north to the Schuylkill River, with possibly some fraction of the total flow reaching the UMR. It is less likely that some part of the site groundwater would be intercepted by the Cabot Well.

- The hydrogeology of the Chester Valley carbonates is conducive to the long-distance migration of contaminant compounds through/along high transmissivity secondary porosity features such as bedding plane dissolution openings and fault boundaries. Contaminant transport is further influenced by the effects of local and regional pumping, which can both enhance the distance and distort the pathway a groundwater plume takes as it migrates away from its parent source.

- Detected PCE and TCE concentrations do not exceed applicable Non-Residential MSC_{IAQ} levels in indoor air samples collected from normally occupied areas. During the September 2010 indoor air sampling, the cable vault and T9281A sample did show detectable concentrations of PCE, and during the 2012 investigation Building 100 T9000 also had detectable PCE concentrations in indoor air. In both studies, all indoor air sample PCE concentrations detected were well below the Non-Residential MSC_{IAQ}.

- The 2010, 2011, and 2012 soil gas samples collected from the Building T9000 identified soil gas concentrations of PCE above the Non-Residential MSC_{SG} and helped to define the boundaries of the vapor plume under this building. Review of the 2012 investigation soil gas colorimetric concentration mapping graphics revealed that highest concentrations for most compounds, including PCE, were observed along the north side of the building between the storm drain line and ramp.

- Using a conservative approach of simple dilution calculations, the transport model indicates a PCE concentration of 300 µg/L averaged across the plume cross section at the point of compliance would be protective of the groundwater supply well exposure pathway. PCE concentrations for the third quarter 2013 sampling events in the proposed compliance wells of WT-MW-8R and WT-MW-18 were 156 µg/L and 165 µg/L (maximum), respectively.

6.2 Recommendations

Upon completion of the site characterization activities, the following continued activities are recommended.

- Continued groundwater sampling to monitor concentrations and identify trends over time.

- Continuous mitigation of Building 600 potential vapor intrusion by installation of a sub-slab depressurization system.

- Evaluation and implementation of potential vapor intrusion mitigation alternatives for Building 100 T9000. These alternatives include: sealing the floor, including the rubber gaskets between the concrete slabs, restricting/prohibiting employee access to T9000, installing of a negative pressure sub-slab vapor recovery system, and demolishing the T9000 portion of Building 100.

- Implementation of a Terradex LandWatch monitoring service. Terradex LandWatch searches electronic databases for specific land activities and uses (e.g., well permit applications and utility clearance requests) and provides real time notifications once they are identified. Land activity monitoring will be performed within the area shown on **Figure 6-1**. This area is roughly equivalent to the area of the groundwater model domain. Within this area, the use of Terradex LandWatch is designed to monitor potential plans for new potable well installations. Although Terradex LandWatch does not prevent intrusive activities in a manner similar to traditional Institutional Controls, it will provide advance notice so Lockheed Martin can work proactively with PADEP to engage additional risk management efforts as warranted.

6.3 Proposed Remedial Measures and Attainment of Standards

Lockheed Martin has submitted a Notice of Intent to Remediate specifying a mix of groundwater standards. A Site Specific Standard is proposed for PCE and a rSWHS for other detected organic analytes in site groundwater.

Barium has consistently been detected in a majority of the monitoring wells across the Lockheed Martin property, and at a few locations above rSWHS. Detected barium concentrations are distributed in a way that implies they are naturally occurring background concentrations. Therefore, Lockheed Martin intends to provide supporting data along with a written request for a Department determination that the barium is naturally occurring in accordance with Section II (A)(4)(b) of the Technical Guidance Manual (Document 253-0300-100), prior to proving attainment of the Background Standard for Barium in site groundwater.

The proposed attainment of standards supports a postremediation care plan that includes monitored natural attenuation. This postremediation monitoring is proposed in light of the past remediation of identified impacted soil, the absence of any other apparent source area following extensive soil investigation, the absence of any apparent non-aqueous phase liquid, and the technical impracticability of remediating impacted groundwater that has diffused into the fractured rock matrix.

Groundwater modeling and risk assessment based on extensive site-specific and regional information obtained during site characterization have identified a Site Specific Standard for PCE of 300 µg/L at the point of compliance as monitored by the proposed compliance wells of WT-MW-8R and WT-MW-18. Conservative dilution-only modeling and risk assessment have calculated that this Site Specific Standard will be protective of potential exposure pathways.

6.4 Notice of Intent to Remediate

A Notice of Intent to Remediate (NIR) was submitted electronically to Walter Payne and Charline Bass at the PADEP Southeast Regional Office on August 4, 2014. The NIR states the site is to be remediated to a combination of Background, Statewide Health, and Site

Specific Standards for groundwater with the future use of the property identified as industrial. In compliance with Pennsylvania Code, Title 25, §250.5 and §250.6, written notice of the NIR was submitted on August 4, 2014 to the governmental agencies of Upper Merion Township and Montgomery County where the site is located. Copies of the NIR form submitted to the PADEP were attached to the letters. The letters informed the agencies that they may participate in the remediation process if a request is presented to the PADEP within 30 days of receipt of the letter and publication of the NIR in the local newspaper. The township and county agencies elected not to participate in the development of the remediation and reuse plans.

Copies of the NIR, proof of publication, and municipal letters are presented in **Appendix AA**.

7.0 REFERENCES

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8.0 SIGNATURE PAGE

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TABLES

TABLE 2-1
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
April 2008 - October 2009

Monitoring Well	Analytical Laboratory	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Bromodichloro- methane µg/L	Trichlorofluoromethane (Freon 11) µg/L	1,1,2-Trichloro-1,22-Trifluoroethane (Freon 113), µg/L	Cis-1,2-Dichloroethene (Cis-1,2-DCE) µg/L	Acetone µg/L	Chloroform µg/L	Benzene µg/L	Toluene µg/L
Residential - GW SWHS				**5**	**5**	**80**	**2,000**	**63,000**	**70**	**33,000**	**80**	**5**	**1,000**
Non-Residential - GW SWHS				**5**	**5**	**80**	**2,000**	**170,000**	**70**	**92,000**	**80**	**5**	**1,000**
WT-MW-1	QC Labs	Open Hole*	4/24/2008	**52.4**	2.31	ND	ND	NS	ND	NR	1.76	ND	0.69
	QC Labs	Open Hole	5/13/2008	**77.9**	2.77	ND	ND	NS	ND	NR	1.06	ND	ND
(duplicate)	QC Labs	Open Hole	5/13/2008	**79.3**	2.95	ND	ND	NS	ND	NR	1.21	ND	ND
	ALSI Labs	Open Hole	5/13/2008	**93.1**	3.1	ND	ND	NS	ND	ND	1.3	ND	ND
	QC Labs	Open Hole	6/18/2008	**106**	2.36	0.360 J	0.990 J	NS	ND	NR	1.32	ND	ND
(duplicate)	QC Labs	Open Hole	6/18/2008	**107**	2.37	0.340 J	1.07	NS	ND	NR	1.27	ND	ND
	QC Labs	Open Hole	8/22/2008	**150**	2.58	ND	1.12	NS	ND	ND	1.6	ND	ND
	QC Labs	53'-55'**	9/29/2008	**99.5**	4.32	0.610 J	ND	NS	ND	ND	6.19	0.470 J	ND
	QC Labs	79'-81'**	9/29/2008	**180**	3.77	0.960 J	1.27	NS	ND	ND	2.78	ND	ND
	QC Labs	104' - 106'**	9/29/2008	**198**	3.56	0.820 J	1.25	NS	ND	ND	2.38	ND	ND
	QC Labs	140' - 142'**	10/9/2008	**143**	3.64	0.850 J	1.28	NS	ND	ND	2.71	ND	ND
	QC Labs	WL - 84' - Z1****	7/13/2009	**97**	2.25	0.610 J	ND	1.40	1.48	ND	2.21	ND	1.76
	QC Labs	85-95' - Z2****	7/13/2009	**157**	2.53	0.510 J	0.890 J	2.02	2.38	ND	2.16	ND	1.72
	QC Labs	96 - 106 - Z3****	7/13/2009	**152**	2.21	0.440 J	0740 J	1.44	0810 J	ND	2.00	ND	1.94
	QC Labs	118-128' - Z4****	7/13/2009	**169**	2.39	0.500 J	0.880 J	2.08	0.620 J	4.13	2.15	ND	3.38
	QC Labs	127'-144' - Z5****	7/13/2009	**142**	3.18	0.510 J	0.700 J	1.63	2.65	4.06	2.16	ND	4.56
	Accutest Labs	WL-91" - Z1 (1st Quart.)	10/16/2009	**83.6**	2.7	0.78 J	0.79 J	1.8 J	ND	ND	2.6	ND	ND
(duplicate)	Accutest Labs	WL-91" - Z1 (1st Quart.)	10/16/2009	**85**	2.7	0.77 J	0.82 J	1.7 J	ND	ND	2.6	ND	ND
	Accutest Labs	96'-106' - Z2 (1st Quart.)	10/15/2009	**12.3**	1.1	ND	0.81 J	ND	ND	ND	0.79 J	ND	ND
	Accutest Labs	111'-144" - Z3 (1st Quart.)	10/16/2009	**8**	1.9	ND	0.55 J	ND	0.66 J	ND	0.77 J	ND	0.76 J
WT-MW-2	QC Labs	Open Hole*	5/12/2009	**53.5**	0.800 J	0.850 J	ND	ND	ND	1.98 J	10.6	ND	36.3
	QC Labs	WL - 80' - Z1****	7/28/2009	**324**	2.0 J	ND	ND	ND	ND	13	1.48 J	ND	6.28
	QC Labs	83.5-98.5' - Z2***	7/28/2009	**266**	ND	ND	ND	ND	ND	10.9	ND	ND	4.15 J
	QC Labs	102-117' - Z3****	7/28/2009	**216**	ND	ND	ND	ND	ND	ND	ND	ND	3.75 J
	QC Labs	120-135' - Z4****	7/28/2009	**322**	ND	ND	ND	ND	ND	ND	ND	ND	3.30 J
	QC Labs	155'-170' - Z5****	7/28/2009	**344**	ND	ND	ND	ND	ND	ND	ND	ND	ND
	QC Labs	191'-215' - Z6****	7/29/2009	**226**	1.8 J	ND	ND	ND	ND	ND	0.780 J	ND	2.9 J
	Accutest Labs	WL-80' - Z1 (1st Quart.)	10/22/2009	**1,170**	**6.8**	0.68 J	ND	ND	0.90 J	ND	3.2	ND	2.4
	Accutest Labs	WL-80' - Z1 - 4.75 Hr (1st Quart.)	11/12/2009	**610**	**7.1**	ND	ND	ND	ND	ND	2.2	ND	ND
	QC Labs	WL-80' - Z1 - 4.75 Hr (1st Quart.)	11/12/2009	**494**	**5.5**	ND	ND	ND	ND	ND	1.9 J	ND	ND
	Accutest Labs	WL-80' - Z1- 10.75 Hr (1st Quart.)	11/12/2009	**801**	**5.2**	ND	ND	ND	0.52 J	ND	2.6	ND	ND
	QC Labs	WL-80' - Z1- 10.75 Hr (1st Quart.)	11/12/2009	**670**	3.85	ND	ND	ND	ND	ND	1.95 J	ND	ND

TABLE 2-1
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
April 2008 - October 2009

Monitoring Well	Analytical Laboratory	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Bromodichloro- methane µg/L	Trichlorofluoromethane (Freon 11) µg/L	1,1,2-Trichloro-1,22-Trifluoroethane (Freon 113), µg/L	Cis-1,2-Dichloroethene (Cis-1,2-DCE) µg/L	Acetone µg/L	Chloroform µg/L	Benzene µg/L	Toluene µg/L
Residential - GW SWHS				5	5	80	2,000	63,000	70	33,000	80	5	1,000
Non-Residential - GW SWHS				5	5	80	2,000	170,000	70	92,000	80	5	1,000
WT-MW-2	Accutest Labs	83'-117' - Z2 (1st Quart.)	10/21/2009	**538**	4.1	ND	ND	ND	0.33 J	ND	1.5	ND	0.60 J
	QC Labs	83'-117' - Z2 (1st Quart.)	10/21/2009	**385**	3.04	ND	ND	ND	ND	ND	1.22 J	ND	ND
	Accutest Labs	120'-170' - Z3 (1st Quart.)	10/19/2009	**102**	3.6	ND	ND	ND	ND	ND	0.92 J	ND	ND
	Accutest Labs	173'-213' - Z4 (1st Quart.)	10/20/2009	**39.2**	0.68	ND	ND	ND	ND	ND	0.45 J	ND	ND
	QC Labs	173'-213' - Z4 (1st Quart.)	10/20/2009	**28.4**	ND	ND	ND	ND	ND	ND	0.34 J	ND	ND
WT-MW-3	QC Labs	Open Hole*	5/12/2009	ND	2.09	0.400 J	ND	ND	ND	ND	3.34	ND	2.41
	QC Labs	173' - 174' - Z5****	7/28/2009	ND	1.41	ND	ND	ND	0.640 J	5.26	2.43	ND	1.04
	Accutest Labs	165'-180' (1st Quart.)	10/14/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-4	QC Labs	Open Hole*	5/12/2009	ND	1.63	0.550 J	0.690 J	ND	ND	1.62 J	2.68	ND	6.97
	QC Labs	WL'-75" - Z1****	7/31/2009	ND	1.85	ND	0.720 J	5.77	ND	6.91	1.73	ND	3.82
	QC Labs	80'-95'-Z2****	8/3/2009	ND	1.26	ND	1.0 J	3.06 J	ND	ND	1.15	ND	0.870 J
	QC Labs	123'-138'-Z3****	8/3/2009	ND	1.73	ND	1.38	3.92	ND	ND	1.47	ND	0.590 J
	QC Labs	141'-156'-Z4****	8/3/2009	ND	1.53	ND	1.29	3.41	ND	ND	1.29	ND	ND
	QC Labs	156'-170' - Z5****	7/30/2009	ND	1.77	ND	1.76	6.63	ND	ND	1.48	ND	ND
	Accutest Labs	115'-150' (1st Quart)	10/15/2009	ND	0.56	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-5	QC Labs	Open Hole*	5/12/2009	**192**	3.1	0.490 J	1.04	ND	ND	1.61 J	1.46	ND	6.68
	QC Labs	WL - 87' - Z1****	7/20/2009	**337**	ND	ND	ND	ND	1.48 J	ND	2.05 J	ND	1.65 J
	QC Labs	90'-105' - Z2'****	7/17/2009	**609**	ND	ND	ND	ND	ND	ND	ND	ND	5.60 J
	QC Labs	114'-129' - Z3'****	7/17/2009	**173**	ND	ND	ND	ND	ND	ND	0.940 J	ND	3.4
	QC Labs	136'-151' - Z4'****	7/17/2009	**120**	2.51	ND	0.80 J	1.46	2.43	ND	0.680 J	ND	7.11
	QC Labs	212'-227' - Z5'****	7/16/2009	**134**	1.56 J	ND	ND	ND	2.14	ND	0.620 J	ND	5.62
	QC Labs	230'-245' - Z6'****	7/16/2009	**194**	3.05	ND	1.21	2.17	3.23	3.3	1.29	ND	9.68
	QC Labs	249'-262' - Z7'****	7/15/2009	**183**	1.7	ND	1.1	1.81	0.830 J	ND	1.25	ND	4.27
	Accutest Labs	WL-105' - Z1*****	7/23/2009	**725**	3.2	0.96 J	1.3 J	2.3 J	3.6	ND	2.8	ND	ND
	QC Labs	WL-105' - Z1*****	7/23/2009	**542**	ND	ND	ND	ND	2.30 J	ND	ND	ND	ND
	Accutest Labs	105'-227' - Z2*****	7/24/2009	**116**	1.5	ND	0.72 J	1.5 J	0.30 J	ND	0.64 J	ND	ND
	QC Labs	105'-227' - Z2*****	7/24/2009	**99.2**	1.29	ND	ND	1.29	ND	ND	0.570 J	ND	ND
	Accutest Labs	227'-262' - Z3*****	7/22/2009	**86.9**	1.1	0.22 J	0.57 J	0.75 J	0.94 J	ND	0.97 J	ND	ND
	QC Labs	227'-262' - Z3*****	7/22/2009	**90.6**	1.05	ND	ND	0.740 J	0.820 J	ND	0.980 J	ND	ND

TABLE 2-1
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
April 2008 - October 2009

Monitoring Well	Analytical Laboratory	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Bromodichloro- methane µg/L	Trichlorofluoromethane (Freon 11) µg/L	1,1,2-Trichloro-1,22-Trifluoroethane (Freon 113), µg/L	Cis-1,2-Dichloroethene (Cis-1,2-DCE) µg/L	Acetone µg/L	Chloroform µg/L	Benzene µg/L	Toluene µg/L
Residential - GW SWHS				**5**	**5**	**80**	**2,000**	**63,000**	**70**	**33,000**	**80**	**5**	**1,000**
Non-Residential - GW SWHS				**5**	**5**	**80**	**2,000**	**170,000**	**70**	**92,000**	**80**	**5**	**1,000**
WT-MW-5	Accutest Labs	WL-105' - Z1 - (1st Quart.)	10/22/2009	**694**	2.1	0.86 J	1.3 J	1.1 J	2.1	ND	2.2	ND	ND
	QC Labs	WL-105' - Z1 - (1st Quart.)	10/22/2009	**571**	1.35	ND	ND	ND	ND	ND	1.85 J	ND	ND
	Accutest Labs	105'-227' - Z2 - (1st Quart.)	10/23/2009	**86**	1.5	ND	0.82 J	0.98 J	ND	ND	0.73 J	ND	ND
	QC Labs	105'-227' - Z2 - (1st Quart.)	10/23/2009	**72.5**	1.22	ND	ND	ND	ND	ND	0.60 J	ND	ND
	Accutest Labs	227'-262' - Z3 - (1st Quart.)	10/27/2009	**386**	1.7	ND	0.92 J	1.2 J	1	ND	1.3	ND	ND
	QC Labs	227'-262' - Z3 - (1st Quart.)	10/27/2009	**290**	1.4 J	ND	ND	ND	ND	ND	1.43 J	ND	ND
WT-MW-6	QC Labs	Open Hole*	5/12/2009	ND	ND	ND	ND	ND	ND	ND	0.750 J	ND	5.06
	QC Labs	WL - 114' - Z2****	7/23/2009	ND	ND	ND	ND	ND	ND	4.97	ND	ND	1.62
	QC Labs	117'-127' - Z3****	7/23/2009	ND	ND	ND	ND	ND	ND	2.7	ND	ND	1.24
	QC Labs	137-147' - Z4****	7/22/2009	ND	ND	ND	ND	ND	ND	8.5	ND	ND	2.11
	QC Labs	157'-167' - Z5****	7/22/2009	ND	ND	ND	ND	ND	ND	2.18	ND	ND	0.660 J
	QC Labs	185'-195' - Z6****	7/22/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.790 J
	QC Labs	198'-208' - Z7****	7/22/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.03
	QC Labs	229'-239' - Z8****	7/21/2009	ND	ND	ND	ND	ND	ND	2.34	ND	ND	1.6
	QC Labs	240'-270' - Z9****	7/21/2009	ND	ND	ND	ND	ND	ND	3.65	ND	ND	3.2
	Accutest Labs	Open Hole (1st Quart.)*	10/13/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Bold and Highlighted: Indicates that the applicable PADEP water quality standard was exceeded as referenced
* Results on this date are from an informal screened water sample that was collected after the well was drilled
** Samples collected from micropurged targeted depth intervals in open hole (pre-packer installation)
*** - Zoned sampling results in WT-MW-1 in open borehole prior to the installation or testing with any straddle packers
**** Groundwater samples collected during initial packer test interval program in July and August 2009
***** Indicates groundwater sample collected immediately after reconfiguration and installation of semi-permanent well packers in July and August 2009
(Ist Quart.): Indicates a formal groundwater sample collected during the 1st quarter sampling event in October and November 2009
J: Represents an estimated concentration below laboratory detection limits
Z1 : Designated sample zone of well associated with straddle packer installations
ND: Compound not detected
NR: Not reported by laboratory
WL: Static water level
NS: Parameter not sampled for on this date
Residential - GW SWHS - PADEP's Medium Specific Concentrations (MSCs) for organic regulated substances in groundwater for residential used aquifers - Groundwater Statewide Health Standards
Non-Residential GW SWHS - PADEP's Medium Specific Concentrations (MSCs) for organic regulated substances in groundwater for non-residential used aquifers - Groundwater Statewide Health Standards

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-1	1	SWL - 91	10/16/09	**83.6**	2.7	ND	ND	0.78 J	ND	ND	2.6	ND	ND	ND	ND	1.8 J	ND	ND	ND	ND	ND	ND	0.79 J	ND
			Duplicate	**85**	2.7	ND	ND	0.77 J	ND	ND	2.6	ND	ND	ND	ND	1.7 J	ND	ND	ND	ND	ND	ND	0.82	ND
			01/21/10	**95**	2.5	ND	ND	0.64 J	ND	ND	2.3	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	ND	0.75 J	ND
			03/31/10	**94.0**	2.4	ND	ND	0.50 J	ND	ND	2.2	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	ND	1.0 J	ND
			07/14/10	**187**	2.7	ND	ND	0.59 J	ND	ND	2.4	ND	ND	ND	ND	0.80 J	ND	ND	ND	ND	ND	ND	ND	ND
			10/28/10	**130**	2.0	ND	ND	0.30 J	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.31 J	ND	ND
			02/24/11	**129**	1.6	ND	ND	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.53	ND	ND
		47-95	05/03/11	**152**	0.95 J	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**553**	1.5	ND	ND	0.27 J	ND	ND	1.9	ND	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**92.4**	1.0	ND	ND	0.27 J	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/13/12	**85.7**	1.0	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**260**	1.2	ND	ND	ND	ND	ND	1.7 B	ND	0.72 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**204**	1.3	ND	ND	ND	ND	ND	1.6 B	ND	0.76 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**270**	1.3	ND	ND	0.2 J	ND	ND	1.8 B	ND	0.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**379**	1.5	ND	ND	0.22 J	ND	ND	1.7	ND	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**400**	1.8	ND	ND	ND	ND	ND	1.7	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**360**	1.2	ND	ND	ND	ND	ND	1.6	ND	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	**250**	1.1 J	ND	ND	ND	ND	ND	1.3 J	ND	0.77 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**272**	1.1 J	ND	ND	ND	ND	ND	1.5 J	ND	0.84 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**240**	1.2	ND	ND	0.2 J	ND	ND	1.6	ND	1.0	ND	ND	0.2 J	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**193.0**	1.1	ND	ND	ND	ND	ND	1.2	ND	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**40.4**	0.59 J	ND	ND	ND	ND	ND	0.90 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/23/13	**73.1**	0.69 J	ND	ND	ND	ND	ND	0.81 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-1	1	SWL - 91	10/16/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/21/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			03/31/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/14/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/28/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1520	ND	ND	ND
			02/24/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1390	ND	ND	ND
		47-95	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	860	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/23/13	ND	ND	ND	ND	ND	ND	ND	1.4 J	ND	ND	ND	ND	ND	ND	1230	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				5	5	33,000*	5	80		20	80	3	70	100	3	63,000*	NA	NA	20	5	100	1,000	2,000	3
Non-Residential - GW SWHS				5	5	92,000*	5	80		20	80	3	70	100	3	170,000	NA	NA	20	5	100	1,000	2,000	3
WT-MW-1 (continued)	2	96-106	10/15/09	12.3	1.1	ND	ND	ND	ND	ND	0.79 J	ND	ND	ND	ND	0.76	ND	ND	ND	ND	ND	ND	0.81 J	ND
			01/21/10	21.4	1.2	ND	ND	ND	ND	ND	0.92 J	ND	ND	ND	ND	0.71 J	ND	ND	ND	ND	ND	ND	0.68 J	ND
			03/31/10	11.4	0.91	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.79 J	ND
			03/31/10	11.4	0.91	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.79 J	ND
			10/28/10	61.6	1.3	ND	ND	ND	ND	ND	0.46J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.80 J	ND	ND
			02/23/11	51.5	1.1	ND	ND	ND	ND	ND	0.76	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND
		100-112	05/03/11	29.9	0.98 J	ND	ND	ND	ND	ND	0.62 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	146	1.3	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	16.4	0.63 J	ND	ND	ND	ND	ND	0.57 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/12	29.9	1.0	ND	ND	ND	ND	ND	0.82 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.57 J	ND
			Duplicate	30.7	0.92 J	ND	ND	ND	ND	ND	0.79 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.52 J	ND
			Split	24.0	1	ND	ND	ND	ND	ND	0.8	ND	ND	ND	ND	0.4 J	ND	ND	ND	ND	ND	ND	0.5 J	ND
			04/17/12	64.6	1.2	ND	ND	ND	ND	ND	1.0 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	84.9	1.5	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.43 J	ND
			10/26/12	85.0	1.1	ND	ND	ND	ND	ND	0.97 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	34.3	0.73 J	ND	ND	ND	ND	ND	0.59 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	24.5	0.78 J	ND	ND	ND	ND	ND	0.76 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/23/13	23.0	0.52 J	ND	ND	ND	ND	ND	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3	111-144	10/16/09	8.0	1.9	ND	ND	ND	ND	ND	0.77 J	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND	0.76 J	0.55 J	ND
			01/20/10	5.8	1.2	ND	ND	ND	ND	ND	0.29 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.42 J	ND	ND
			03/30/10	5.9	0.93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/10	8.4	0.76 J	ND	ND	ND	ND	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.52 J	ND	ND
			10/27/10	21.2	0.77 J	ND	ND	ND	ND	ND	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/22/11	44.4	0.84	ND	ND	ND	ND	ND	0.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.38	ND	ND
			Duplicate	36.3	0.70	ND	ND	ND	ND	ND	0.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.38	ND	ND
		117-145	05/03/11	17.2	0.43 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	140	1.0	ND	ND	ND	ND	ND	0.59 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	28.3	0.34 J	ND	ND	ND	ND	ND	0.22 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/12	17.2	0.72 J	ND	ND	ND	ND	ND	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.42 J	ND
			04/17/12	363	1.9	ND	ND	ND	ND	ND	0.96 B	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	354	1.6	ND	ND	ND	ND	ND	0.89 J	ND	0.90 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	182.0	1.1	ND	ND	ND	ND	ND	0.57 J	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	89.1	0.77 J	ND	ND	ND	ND	ND	0.29 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	26.7	0.57 J	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/23/13	36.2	ND	ND	ND	ND	ND	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-1 (continued)	2	96-106	10/15/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/21/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			03/31/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			03/31/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/28/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1160	ND	ND	ND
			02/23/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1110	ND	ND	ND
		100-112	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/10/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1190	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1100	ND	ND	ND
			Split	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/23/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	793	ND	ND	ND
	3	111-144	10/16/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/20/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			03/30/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/27/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	707	ND	ND	ND
			02/22/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	744	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	718	ND	ND	ND
		117-145	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/10/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	741	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/23/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	761	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-1 (continued)	4	150-180	05/03/11	**44.50**	0.51 J	ND	ND	ND	ND	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**31.8**	0.46 J	ND	ND	ND	ND	ND	0.34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**6.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/12	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	3.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	3.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	0.93 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/23/13	0.92 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5	212-230	05/03/11	**11.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**9.9**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/12	**9.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**15.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**20.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	**19.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**18.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**17.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/23/13	**27.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6	355-365	05/03/11	**74.6**	0.99 J	ND	ND	ND	ND	ND	0.67 J	ND	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**7.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.75 J	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**6.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/12	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**7.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**9.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	**11.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**9.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**6.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/23/13	**8.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-1 (continued)	4	150-180	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/10/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	338	ND	ND	42.7
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/23/13	ND	ND	ND	ND	ND	ND	ND	**2.1 J**	ND	ND	ND	ND	ND	ND	375	ND	ND	39.3
	5	212-230	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/10/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	719	ND	ND	19.2
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/23/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	947	ND	ND	38.7
	6	355-365	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/10/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	486	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/23/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1	614	ND	ND	16.1

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-1 (continued)	7	395-415	05/03/11	**19.1**	0.74 J	ND	ND	ND	ND	ND	0.52 J	ND	0.30 J	ND	ND	0.57 J	ND	ND	ND	ND	ND	ND	0.93 J	ND
			07/25/11	**11.3**	0.56 J	ND	ND	ND	ND	ND	0.40 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**10.7**	0.45 J	ND	ND	ND	ND	ND	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**10.0**	0.50	ND	ND	ND	ND	ND	0.4 J	ND	0.2 J	ND	ND	0.4 J	ND	ND	ND	ND	ND	ND	0.70 J	ND
			12/28/11	**18.8**	0.58 J	ND	ND	ND	ND	ND	0.42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND
			02/09/12	**19.5**	0.59 J	ND	ND	ND	ND	ND	0.39 J	ND	0.25 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.51 J	ND
			04/17/12	**16.3**	0.62 J	ND	ND	ND	ND	ND	0.36 B	ND	ND	ND	ND	0.49 J	ND	ND	ND	ND	ND	ND	0.77 J	ND
			07/16/12	**15.5**	0.66 J	ND	ND	ND	ND	ND	0.51 J	ND	0.24 J	ND	ND	0.81 J	ND	ND	ND	ND	ND	ND	0.85 J	ND
			10/26/12	**10.3**	0.43 J	ND	ND	ND	ND	ND	0.38 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.32 J	ND
			01/09/13	**18.9**	0.57 J	ND	ND	ND	ND	ND	0.37 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**17.3**	0.60 J	ND	ND	ND	ND	ND	0.41 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.66 J	ND
			07/22/13	**17.7**	0.47 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.66 J	ND
	8	444-464	05/03/11	**22.3**	0.90 J	ND	ND	ND	ND	ND	0.53 J	ND	0.38 J	ND	ND	0.69 J	ND	ND	ND	ND	ND	ND	1.2 J	ND
			07/25/11	**9.6**	0.50 J	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**22.9**	0.67 J	ND	ND	ND	ND	ND	0.44 J	ND	ND	ND	ND	0.96 J	ND	ND	ND	ND	ND	ND	1.3 J	ND
			Duplicate	**9.6**	0.61 J	ND	ND	ND	ND	ND	0.44 J	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.64 J	ND
			Split	**14**	0.50	ND	ND	ND	ND	ND	0.4 J	ND	0.2 J	ND	ND	0.4 J	ND	ND	ND	ND	ND	ND	0.5	ND
			02/10/12	**21.4**	0.74 J	ND	ND	ND	ND	ND	0.44 J	ND	0.47 J	ND	ND	1.1 J	ND	ND	ND	ND	ND	ND	1.6 J	ND
			04/17/12	**16.6**	0.54 J	ND	ND	ND	ND	ND	0.33 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.76 J	ND
			07/16/12	**14.8**	0.59 J	ND	ND	ND	ND	ND	0.42 J	ND	0.21 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.73 J	ND
			10/26/12	**6.9**	0.28 J	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**18.6**	0.55 J	ND	ND	ND	ND	ND	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**19.3**	0.56 J	ND	ND	ND	ND	ND	0.23 J	ND	0.42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.73 J	ND
			07/22/13	**31.8**	0.39 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-1 (continued)	7	395-415	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	614	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/22/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	573	ND	3	ND
	8	444-464	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/10/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	470	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/22/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	489	ND	4.2	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-2	1	0 - 80	10/21/09	**801**	**5.2**	ND	ND	ND	ND	ND	2.6	ND	0.52 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/28/10	**613 D**	4.3	ND	ND	0.41 J	ND	ND	2.2	ND	0.48 J	ND	ND	ND	ND	ND	ND	ND	ND	1.7	ND	ND
			Duplicate	**613 D**	4.3	ND	ND	0.40 J	ND	ND	2.3	ND	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	1.8	ND	ND
			05/04/10	**953**	3.5	ND	ND	ND	ND	ND	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.83 J	ND	ND
			07/14/10	**733**	5.0	ND	0.39 J	0.30 J	ND	ND	3.0	ND	3.2	ND	ND	ND	ND	ND	ND	ND	ND	0.35 J	ND	ND
			11/08/10	**2760**	3.8	ND	ND	ND	ND	ND	3.4	ND	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/15/11	**2750**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**1600**	1.7 J	ND	ND	ND	ND	ND	2.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**2900**	3.0	ND	ND	ND	ND	ND	2.9	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**3300**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**3,100**	4.4 J	ND	ND	ND	ND	ND	2.5 J	ND	11.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**4,070**	4.1 J	ND	ND	ND	ND	ND	2.5 J	ND	11.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**4,200**	4.7 J	ND	ND	ND	ND	ND	2.8 J	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/29/11	**2,730**	2.6 J	ND	ND	ND	ND	ND	2.6 J	ND	1.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**2,070**	2.2 J	ND	ND	ND	ND	ND	2.4 J	ND	1.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**2,000**	2.1 J	ND	ND	ND	ND	ND	2.4 J	ND	1.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/12	**2,020**	1.5 J	ND	ND	ND	ND	ND	ND	ND	2.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**1,280**	1.2 J	ND	ND	ND	ND	ND	1.3 J	ND	1.8 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**2,400**	2.4 J	ND	ND	ND	ND	ND	2.3 J	ND	2.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	**2100**	2.0 J	ND	ND	ND	ND	ND	2.9 J	ND	2.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**1080**	ND	ND	ND	ND	ND	ND	2.0 J	ND	1.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**2200**	2.4 J	ND	ND	ND	ND	ND	3.0 B	ND	2.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**185**	ND	5.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**96**	ND	5.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**100**	ND	7.1 J	ND	ND	ND	ND	ND	ND	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	**236**	0.24 J	ND	ND	0.24 J	ND	ND	0.22 J	ND	0.43 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**258**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**220**	0.2 J	ND	ND	ND	ND	ND	0.2 J	ND	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**1080**	ND	ND	ND	ND	ND	ND	1.2 J	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**1540**	2.0 J	ND	ND	ND	ND	ND	1.5 J	ND	6.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/22/13	**1310**	1.5	ND	ND	ND	ND	ND	1.5	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**1240**	1.4	ND	ND	ND	ND	ND	1.4	ND	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-2	1	0 - 80	10/21/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/28/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/04/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/14/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/08/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	608	ND	ND	ND
			02/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	552	ND	ND	**233**
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/14/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	609	**2970**	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	692	103	ND	ND
			Split	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/22/13	ND	ND	ND	0.199	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	705	ND	3.1	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	714	ND	3.6	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-2 (continued)	2	83-117	10/21/09	**538**	4.1	ND	ND	ND	ND	ND	1.5	ND	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	0.60 J	ND	ND
			01/28/10	**289 D**	3.8	ND	ND	ND	ND	ND	1.2	ND	0.24 J	ND	ND	0.62 J	ND	ND	ND	ND	ND	0.98 J	ND	ND
			05/03/10	**294**	2.2	ND	ND	ND	ND	ND	0.93 J	ND	ND	ND	ND	1.93	ND	ND	ND	ND	ND	1.2 J	1.24	ND
			07/29/10	**309**	2.4	ND	ND	ND	ND	ND	1.5	ND	0.57 J	ND	ND	0.87 J	ND	ND	ND	ND	ND	0.69 J	ND	ND
			Duplicate	**303**	2.3	ND	ND	ND	ND	ND	1.4	ND	0.61 J	ND	ND	0.57 J	ND	ND	ND	ND	ND	0.70 J	ND	ND
			11/08/10	**776**	3.6	ND	ND	ND	ND	ND	1.8	ND	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**658**	3.5	ND	ND	ND	ND	ND	1.8	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/15/11	**563**	2.1 J	ND	ND	ND	ND	ND	1.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**521**	2.1 J	ND	ND	ND	ND	ND	1.5	ND	0.77 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**606**	1.7	ND	ND	ND	ND	ND	1.6	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/29/11	**561**	2.2	ND	ND	ND	ND	ND	2	ND	0.94 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/12	**463**	1.4	ND	ND	ND	ND	ND	1.4	ND	0.82 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	**925**	2.3	ND	ND	ND	ND	ND	2.1 B	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**953**	2.6	ND	ND	ND	ND	ND	1.9 J	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	**1050**	3.4	ND	ND	ND	ND	ND	2.2	ND	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**792**	2.6	ND	ND	ND	ND	ND	1.9	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**678**	1.6 J	ND	ND	ND	ND	ND	2.0 J	ND	1.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/19/13	**421**	1.5	ND	ND	ND	ND	ND	1.3	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3	120-170	10/19/09	**102**	3.6	ND	ND	ND	ND	ND	0.92 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/27/10	**76.3**	1.9	ND	ND	ND	ND	ND	0.53 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/27/10	**504**	3.1	ND	ND	ND	ND	ND	1.6	ND	0.26 J	ND	ND	0.57 J	ND	ND	ND	ND	ND	1.6	ND	ND
			07/28/10	**208**	1.7	ND	ND	ND	ND	ND	0.77 J	ND	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	0.85 J	ND	ND
		120-154	11/09/10	**187**	1.8	ND	ND	ND	ND	ND	0.70 J	ND	0.39 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/15/11	**206**	1.3	ND	ND	ND	ND	ND	0.54 J	ND	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**187**	1.3	ND	ND	ND	ND	ND	0.63 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**329**	1.5	ND	ND	ND	ND	ND	0.90 J	ND	0.71 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/29/11	**384**	1.2	ND	ND	ND	ND	ND	1.1	ND	0.53 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/12	**498**	1.7	ND	ND	ND	ND	ND	1.3	ND	0.90 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	**1150**	2.6 J	ND	ND	ND	ND	ND	1.9 B	ND	5.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**1200**	2.7 J	ND	ND	ND	ND	ND	2.3 J	ND	3.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	**821**	2.1 J	ND	ND	ND	ND	ND	1.4 J	ND	2.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**792**	2.6	ND	ND	ND	ND	ND	1.9	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**1770**	1.4 J	ND	ND	ND	ND	ND	1.4 J	ND	2.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/19/13	**659**	1.8	ND	ND	ND	ND	ND	1.2	ND	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-2 (continued)	2	83-117	10/21/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/28/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/03/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/08/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2540**	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2620**	ND	ND	ND
			02/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3180**	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/14/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2720**	ND	ND	ND
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2750**	ND	ND	ND
	3	120-170	10/19/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/27/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/27/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/28/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		120-154	11/09/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	964	ND	ND	ND
			02/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1200	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/14/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1140	ND	ND	ND
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1300	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-2 (continued)	4	173-213	10/20/09	**39.2**	0.68	ND	ND	ND	ND	ND	0.45 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/26/10	**20.7**	0.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/26/10	**14.5**	0.31 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/27/10	**34.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**34.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		157-187	11/09/10	4.7	0.42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/15/11	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/29/11	**11.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/12	**7.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	**8.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**59.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	**80.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**447**	1.8	ND	ND	ND	ND	ND	1	ND	0.97 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**313**	0.42 J	ND	0.29 J	ND	ND	ND	0.22 J	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/19/13	**165**	ND	ND	ND	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5	190-213	11/09/10	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/15/11	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/29/11	**59.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/12	**20.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	**24.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**121.0**	0.35 J	ND	ND	ND	ND	ND	ND	ND	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	**94.4**	0.25 J	ND	ND	ND	ND	ND	ND	ND	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**118**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**138**	0.29 J	ND	ND	ND	ND	ND	ND	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/19/13	**116**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-2 (continued)	4	173-213	10/20/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/26/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/26/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/27/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		157-187	11/09/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2180**	ND	ND	**74.3**
			02/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1430	ND	ND	40.4
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/14/12	2.0 J	ND	ND	ND	2.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	1140	ND	ND	15.4
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1380	ND	ND	146.9
	5	190-213	11/09/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1540	ND	ND	**50.1**
			02/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1950	ND	ND	**57.9**
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/14/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1660	ND	ND	43.9
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3320**	ND	ND	**86.6**

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-3	NA	165-180	10/14/09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/12/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/12/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/07/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/21/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/02/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/10/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1 J	ND	ND
			8/2/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/17/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/27/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/18/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/18/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/05/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/10/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-4	NA	115-150	10/15/09	ND	0.56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/12/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/12/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/08/10	ND	0.51 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/21/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/03/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/10/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	ND	0.2 J	ND	ND	ND	ND	ND	0.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/02/11	2.8	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/06/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/15/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/27/12	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/20/12	**5.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/14/12	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/10/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-3	NA	165-180	10/14/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/12/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/12/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/07/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/21/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	459	ND	ND	**72.6**
			02/02/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	434	ND	ND	**130**
			05/10/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			8/2/2011	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/17/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/14/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	459	ND	ND	**123**
			04/27/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/05/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/10/13	ND	ND	ND	ND	ND	ND	ND	1.9 J	ND	ND	ND	ND	ND	ND	671	ND	ND	**121**
WT-MW-4	NA	115-150	10/15/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/12/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/12/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/08/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/21/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	781	ND	ND	ND
			02/03/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	824	ND	ND	ND
			05/10/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/02/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/06/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/15/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	872	ND	ND	ND
			04/27/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/20/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/14/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/10/13	ND	ND	ND	ND	ND	ND	ND	1.4 J	ND	ND	ND	ND	ND	ND	881	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-5	1	0-105	10/22/09	**694**	2.1	ND	ND	0.86 J	ND	ND	2.2	ND	2.1	ND	ND	1.1 J	ND	ND	ND	ND	ND	ND	1.3 J	ND
			01/18/10	**411 D**	1.5	ND	ND	0.58 J	ND	ND	1.9	ND	1.5	ND	ND	1.2 J	ND	ND	ND	ND	ND	ND	0.95 J	ND
			Duplicate	**422 D**	1.5	ND	ND	0.59 J	ND	ND	1.8	ND	1.5	ND	ND	1.3 J	ND	ND	ND	ND	ND	ND	0.89 J	ND
			04/07/10	**364**	1.4	ND	ND	0.45 J	ND	ND	1.6	ND	1.0	ND	ND	1.8 J	ND	ND	ND	ND	ND	ND	1.1 J	ND
			07/12/10	**706**	2.8	ND	ND	0.78 J	ND	ND	2.4	ND	3.5	ND	ND	1.5 J	ND	ND	ND	ND	ND	12.3	1.5 J	ND
			11/03/10	**660**	2.1	ND	ND	0.53 J	ND	ND	2.1	ND	3.7	ND	ND	1.3 J	ND	ND	ND	ND	ND	0.54 J	1.3 J	ND
			02/25/11	**738**	1.7	ND	ND	0.36 J	ND	ND	1.4	ND	3.3	ND	ND	0.64 J	ND	ND	ND	ND	ND	ND	0.80 J	ND
		45-105	05/03/11	**648**	0.87 J	ND	ND	ND	ND	ND	1.1 J	ND	1.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**979**	1.5 J	ND	ND	ND	ND	ND	ND	ND	7.6	ND	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**319**	0.71 J	ND	ND	ND	ND	ND	0.73 J	ND	0.57 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**316**	0.69 J	ND	ND	ND	ND	ND	0.76 J	ND	0.58 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**170**	0.7	ND	ND	0.2 J	ND	ND	0.8	ND	0.7	ND	ND	0.4 J	ND	ND	ND	ND	ND	ND	0.4 J	ND
			02/13/12	**155**	0.52 J	ND	ND	ND	ND	ND	0.69 J	ND	0.58 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	**1060**	1.9	ND	ND	0.26 J	ND	ND	1.6 B	ND	7.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**933**	1.3 J	ND	ND	ND	ND	ND	1.2 B	ND	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**1400**	1.9 J	ND	ND	ND	ND	ND	1.8 B	ND	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**879**	1.5 J	ND	ND	ND	ND	ND	1.8 J	ND	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**943**	1.2 J	ND	ND	ND	ND	ND	1.2 J	ND	5.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**1100**	1.2 J	ND	ND	ND	ND	ND	1.2 J	ND	4.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	**917**	1.3 J	ND	ND	ND	ND	ND	1.0 J	ND	5.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**874**	1.2 J	ND	ND	ND	ND	ND	1.2 J	ND	4.8 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**1000**	1.6	ND	ND	0.2 J	ND	ND	1.3	ND	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5 J	ND
			01/10/13	**852**	1.4	ND	ND	ND	ND	ND	1.2	ND	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.84 J	ND
			04/30/13	**742.0**	ND	ND	ND	ND	ND	ND	1.2 J	ND	3.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/08/13	**533.0**	0.76 J	ND	ND	ND	ND	ND	0.66 J	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-5	1	0-105	10/22/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/18/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/07/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/12/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/03/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	765	ND	ND	ND
			02/25/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	989	ND	ND	ND
		45-105	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	770	ND	ND	ND
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	831	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				5	5	33,000*	5	80		20	80	3	70	100	3	63,000*	NA	NA	20	5	100	1,000	2,000	3
Non-Residential - GW SWHS				5	5	92,000*	5	80		20	80	3	70	100	3	170,000	NA	NA	20	5	100	1,000	2,000	3
WT-MW-5 (continued)	2	105-227	10/23/09	86.0	1.5	ND	ND	ND	ND	ND	0.73 J	ND	ND	ND	ND	0.98 J	ND	ND	ND	ND	ND	ND	0.82 J	ND
			01/13/10	38.5	1.4	ND	ND	ND	ND	ND	0.59 J	ND	ND	ND	ND	0.75 J	ND	ND	ND	ND	ND	ND	ND	ND
			04/01/10	33.4	1.4	ND	ND	ND	ND	ND	0.50 J	ND	ND	ND	ND	0.58 J	ND	ND	ND	ND	ND	ND	0.55 J	ND
			07/12/10	257	3.2	ND	ND	ND	ND	ND	1.3	ND	0.76 J	ND	ND	4.5 J	ND	ND	ND	ND	ND	ND	2.0 J	ND
			11/03/10	180	1.5	ND	ND	ND	ND	ND	0.90 J	ND	1.0	ND	ND	2.8 J	ND	ND	ND	ND	ND	ND	1.3 J	ND
			Duplicate	178	1.5	ND	ND	ND	ND	ND	0.87 J	ND	0.74 J	ND	ND	3.0 J	ND	ND	ND	ND	ND	ND	1.2 J	ND
			02/21/11	353	1.7	ND	ND	ND	ND	ND	0.79	ND	1.2	ND	ND	2.1	ND	ND	ND	ND	ND	ND	1.1	ND
			Duplicate	365	1.7	ND	ND	ND	ND	ND	0.79	ND	1.2	ND	ND	1.9	ND	ND	ND	ND	ND	ND	1.1	ND
		110-150	05/03/11	134	0.82 J	ND	ND	ND	ND	ND	0.65 J	ND	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	326	1.2	ND	ND	ND	ND	ND	1.0	ND	1.2	ND	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	112	0.76 J	ND	ND	ND	ND	ND	0.62 J	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/13/12	168	1.0	ND	ND	ND	ND	ND	0.86 J	ND	0.53 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	138	0.86 J	ND	ND	ND	ND	ND	0.75 J	ND	0.43 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	130	0.9 J	ND	ND	ND	ND	ND	ND	0.8 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	508	1.8	ND	ND	ND	ND	ND	1.2 B	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	422	1.8	ND	ND	ND	ND	ND	1.5	ND	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.46 J	ND
			10/31/12	345	1.0 J	ND	ND	ND	ND	ND	0.98 J	ND	1.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	161	1.2	ND	ND	ND	ND	ND	0.75 J	ND	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	274	0.90 J	ND	ND	ND	ND	ND	0.69 J	ND	0.80 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/08/13	5.4	1.0	ND	ND	ND	ND	ND	0.74 J	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3	227-262	10/27/09	386	1.7	ND	ND	ND	ND	ND	1.3	ND	1.0	ND	ND	1.2 J	ND	ND	ND	ND	ND	ND	0.92 J	ND
			01/14/10	178	1.5	ND	ND	0.25 J	ND	ND	0.99 J	ND	0.49 J	ND	ND	0.85 J	ND	ND	ND	ND	ND	ND	0.67 J	ND
			04/06/10	196	1.6	ND	ND	ND	ND	ND	0.86 J	ND	0.45 J	ND	ND	0.95 J	ND	ND	ND	ND	ND	ND	1.27	ND
			07/08/10	308	2.3	ND	ND	ND	ND	ND	0.86 J	ND	1.2	ND	ND	1.8 J	ND	ND	ND	ND	ND	ND	0.92 J	ND
			Duplicate	280	1.7	ND	ND	0.28 J	ND	ND	1.3	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	0.73 J	1.4 J	ND
			11/02/10	286	1.8	ND	ND	0.29 J	ND	ND	1.4	ND	1.6	ND	ND	2.3 J	ND	ND	ND	ND	ND	ND	1.4 J	ND
			Duplicate	280	1.7	ND	ND	0.28 J	ND	ND	1.3	ND	1.6	ND	ND	2.3 J	ND	ND	ND	ND	ND	ND	1.4 J	ND
			02/24/11	443	1.6	ND	ND	ND	ND	ND	1.3	ND	1.8	ND	ND	0.64	ND	ND	ND	ND	ND	ND	ND	ND
		155-165	05/03/11	66.5	0.56 J	ND	ND	ND	ND	ND	0.64 J	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	50.4	0.60 J	ND	ND	ND	ND	ND	0.58 J	ND	0.52 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	38.4	0.59 J	ND	ND	ND	ND	ND	0.48 J	ND	0.64 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/13/12	20.1	0.32 J	ND	ND	ND	ND	ND	0.28 J	ND	0.34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	35.1	0.60 J	ND	ND	ND	ND	0.67 J	0.49 B	0.32 J	0.52 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	25.6	0.48 J	ND	ND	ND	ND	0.69 J	0.39 J	0.32 J	0.51 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	24.5	0.54 J	ND	ND	ND	ND	0.68 J	0.36 J	ND	0.40 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	26.9	0.52 J	ND	ND	ND	ND	0.40 J	ND	ND	0.31 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	23.7	0.46 J	ND	ND	ND	ND	ND	0.37 J	ND	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/08/13	34.0	0.47 J	ND	ND	ND	ND	ND	0.45 J	ND	0.40 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-5 (continued)	2	105-227	10/23/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/13/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/01/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/12/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/03/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1700	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1700	ND	ND	ND
			02/21/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1560	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1590	ND	ND	ND
		110-150	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1630	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1640	ND	ND	ND
			Split	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1770	ND	ND	ND
	3	227-262	10/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/14/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/06/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/08/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/02/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1550	ND	ND	24.0
			Duplicate	ND	0.404	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1510	ND	ND	23.5
			02/24/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1560	ND	ND	38.7
		155-165	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1740	ND	ND	**133**
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1890	ND	ND	**64.4**

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-5 (continued)	4	170-225	05/03/11	**18.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**13.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**20.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/13/12	**275**	1.0	ND	ND	ND	ND	ND	0.84 J	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	**405**	1.4	ND	ND	ND	ND	ND	0.89 B	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**173**	0.65 J	ND	ND	ND	ND	ND	0.33 J	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	**114**	0.51 J	ND	ND	ND	ND	ND	ND	ND	0.29 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**118**	0.49 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**66.2**	0.38 J	ND	ND	ND	ND	ND	ND	ND	0.22 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/08/13	**66.3**	0.34 J	ND	ND	ND	ND	ND	ND	ND	0.21 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5	230-262	05/03/11	**166**	0.99 J	ND	ND	ND	ND	ND	0.50 J	ND	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**47.6**	0.60 J	ND	ND	ND	ND	ND	ND	ND	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**85.1**	0.52 J	ND	ND	ND	ND	ND	0.40 J	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/13/12	**84.6**	0.77 J	ND	ND	ND	ND	ND	0.34 J	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/18/12	**139**	1.3	ND	ND	ND	ND	ND	0.23 B	ND	0.85 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/12	**123**	1.3	ND	ND	ND	ND	ND	ND	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/31/12	**73**	0.93 J	ND	ND	ND	ND	ND	ND	ND	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**102**	1.5	ND	ND	ND	ND	ND	ND	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**81.7**	0.72 J	ND	ND	ND	ND	ND	ND	ND	0.29 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/08/13	**146**	0.68 J	ND	ND	ND	ND	ND	0.21 J	ND	0.64 J	ND	ND	ND	ND	ND	ND	ND	ND	0.29 J	ND	ND
WT-MW-5Dss	NA	266-286	10/29/10	**15.3**	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/17/11	4.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**15.3**	**5.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/24/11	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/10/11	2.7	0.25 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	2.7	0.25 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	2.5	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/06/11	2.7	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/24/12	2.3	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.32 J	ND	ND
			05/04/12	2.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/30/12	4.9	0.64 J	ND	ND	ND	ND	0.34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/12/12	**5.2**	0.62 J	ND	ND	ND	ND	ND	ND	0.46 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/24/13	0.94 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND
			05/08/13	**11.1**	1.0	ND	ND	ND	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/26/13	**16.4**	1.3	ND	ND	ND	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**16.4**	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-5 (continued)	4	170-225	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1430	ND	ND	ND
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.355**	0.277	ND	0.268	ND	1540	ND	ND	29.1
	5	230-262	05/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/13/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1240	ND	ND	35.9
			04/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1360	ND	ND	26.6
WT-MW-5Dss	NA	266-286	10/29/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	543	**640**	ND	**85.9**
			02/17/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.6	216	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.6	240	ND	ND	ND
			05/24/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/10/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/06/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/24/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.3	276	ND	ND	37
			05/04/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/30/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/24/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/26/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.4	393	ND	ND	**117**
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.3	397	ND	ND	**117**

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
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Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-5DIs	NA	303-318	10/29/10	**16.3**	1.2	ND	ND	ND	ND	ND	0.68 J	ND	ND	ND	ND	0.91 J	ND	ND	ND	ND	ND	ND	1.1 J	ND
			Duplicate	**17.7**	1.2	ND	ND	ND	ND	ND	0.68 J	ND	ND	ND	ND	1.1 J	ND	ND	ND	ND	ND	ND	1.2 J	ND
			02/18/11	**25.5**	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**24.5**	0.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/25/11	**24.7**	0.96 J	ND	ND	ND	ND	ND	0.23 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.28 J	ND
			Duplicate	**24.6**	0.97 J	ND	ND	ND	ND	ND	0.21 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**21**	0.9	ND	ND	ND	ND	ND	0.3 J	ND	0.1 J	ND	ND	0.4 J	ND	ND	ND	ND	ND	0.1 J	0.4 J	ND
			08/11/11	**21.1**	0.91 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.45 J	ND
			Duplicate	**21.9**	0.83 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.36 J	ND
			Split	**20**	0.9	ND	ND	ND	ND	ND	0.2 J	ND	0.1 J	ND	ND	0.4 J	ND	ND	ND	ND	ND	ND	0.3 J	ND
			12/13/11	**21.1**	0.73 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/28/12	**23.8**	0.76 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/10/12	**45.8**	0.82 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/03/12	**56.2**	0.82 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**57.6**	0.83 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**38**	0.8	ND	ND	ND	ND	ND	0.2 J	ND	0.2 J	0.2 J	ND	0.3 J	ND	ND	ND	ND	ND	ND	0.3 J	ND
			11/20/12	**56.9**	0.89 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**50.0**	0.86 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**32**	0.7	ND	ND	ND	ND	ND	0.2 J	ND	0.2 J	0.2 J	ND	ND	ND	ND	ND	ND	ND	ND	0.2 J	ND
			01/28/13	**56.2**	0.93 J	ND	ND	ND	ND	ND	ND	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	0.39 J	ND	ND
			05/13/13	**46.4**	0.80 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/30/13	**65.4**	0.78 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-6	NA	0-270	10/13/09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/11/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/08/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/07/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/12/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/02/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/05/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/28/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/11/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/06/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/19/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/22/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				6	100	260	1,100	5	200	2	5	0.29	0.26	0.029	2	2	10	2,000	300	5	50
Non-Residential - GW SWHS				6	100	260	1,100	5	200	2	5	3.6	0.26	0.36	2	2	10	2,000	300	5	50
WT-MW-5DIs	NA	303-318	10/29/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	363	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	366	ND	ND	ND
			02/18/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	290	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	286	ND	ND	ND
			05/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/13/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/28/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/10/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/03/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/20/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/28/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/13/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/30/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	650	ND	ND	ND
WT-MW-6	NA	0-270	10/13/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/11/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/08/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/07/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/12/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	638	ND	ND	ND
			02/02/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1290	ND	ND	ND
			05/05/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/06/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	740	ND	ND	ND
			04/19/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/09/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/22/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-7	1	69-92	11/01/10	**479**	1.4	ND	ND	0.22 J	ND	ND	1.7	ND	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/11	**876**	2.0	ND	ND	ND	ND	ND	2.0	ND	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**389**	1.5	ND	ND	ND	ND	ND	1.9	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**493**	1.7	ND	ND	ND	ND	ND	2.3	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**1000**	1.7 J	ND	ND	ND	ND	ND	2.2 J	ND	2.2 J	ND	ND	ND	ND	ND	ND	1.1 J	ND	ND	ND	ND
			07/25/11	**943**	1.7	ND	ND	ND	ND	ND	2.0	ND	5.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**434**	1.1	ND	ND	ND	ND	ND	1.6	0.26 J	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/09/12	**460**	1.1	ND	ND	ND	ND	ND	1.9	ND	2.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**602**	1.7	ND	ND	ND	ND	ND	2.6 B	ND	4.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**481**	1.3	ND	ND	ND	ND	ND	2.0 B	ND	3.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**750**	1.6 J	ND	ND	ND	ND	ND	2.4 B	ND	3.5	ND	ND	ND	1.7 J	1.7 J	ND	ND	ND	ND	ND	ND
			07/13/12	**664**	2.3	ND	ND	0.25 J	ND	ND	3.0	ND	5.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**738**	1.8	ND	ND	0.21 J	ND	ND	2.7	ND	4.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**690**	1.6 J	ND	ND	ND	ND	ND	2.4 J	ND	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	**688**	2.1	ND	ND	0.24 J	ND	ND	3.0	ND	5.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**478**	1.7	ND	ND	0.25 J	ND	ND	2.7	ND	5.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**480**	1.8	ND	ND	0.2 J	ND	ND	2.6	ND	5.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**567**	2.4	ND	ND	ND	ND	ND	3.1	ND	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	**230**	1.4	ND	ND	ND	ND	ND	2.4	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/13	**390**	1.8	ND	ND	ND	ND	ND	2.3	ND	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	97-124	11/02/10	**162**	1.3	ND	ND	ND	ND	ND	0.62 J	ND	0.82 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/11	**154**	0.96 J	ND	ND	ND	ND	ND	0.51 J	ND	0.37 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**149**	0.88 J	ND	ND	ND	ND	ND	0.41 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**290**	0.80 J	ND	ND	ND	ND	ND	0.66 J	ND	0.91 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**266**	0.99 J	ND	ND	ND	ND	ND	0.83 J	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**203**	0.74 J	ND	ND	ND	ND	ND	0.68 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**160**	0.9	ND	ND	ND	ND	ND	0.8	ND	0.6	ND	ND	0.2 J	ND	ND	ND	ND	ND	ND	0.1 J	ND
			02/09/12	**128**	0.50 J	ND	ND	ND	ND	ND	0.42 J	ND	0.45 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**127**	0.54 J	ND	ND	ND	ND	ND	0.44 J	ND	0.41 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**170**	0.8	ND	ND	ND	ND	ND	0.6	ND	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1 J	ND
			04/17/12	**183**	0.84 J	ND	ND	ND	ND	ND	0.70 B	ND	0.58 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/13/12	**4.3**	0.49 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	**137**	0.86 J	ND	ND	ND	ND	ND	0.59 J	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**99.4**	0.65 J	ND	ND	ND	ND	ND	0.39 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	**76.3**	0.57 J	ND	ND	ND	ND	ND	0.45 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/13	**159**	0.63 J	ND	ND	ND	ND	ND	0.41 J	ND	0.38 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-7	1	69-92	11/01/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3680**	ND	ND	ND
			02/10/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3900**	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3840**	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/13	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3890**	ND	ND	ND
	2	97-124	11/02/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1540	ND	ND	ND
			02/10/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2470**	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2330**	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2340**	ND	ND	ND
			Split	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1910	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-7 (continued)	3	129-149	11/02/10	**55.0**	0.73 J	ND	ND	ND	ND	ND	0.28 J	ND	0.42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/11	**122**	0.96 J	ND	ND	ND	ND	ND	0.40 J	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**111**	0.86 J	ND	ND	ND	ND	ND	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**130**	0.59 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**191**	0.89 J	ND	ND	ND	ND	ND	0.68 J	ND	0.49 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/09/12	**124**	0.59 J	ND	ND	ND	ND	ND	0.49 J	ND	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**84.3**	0.46 J	ND	ND	ND	ND	ND	0.28 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/13/12	**88.1**	ND	ND	ND	ND	ND	ND	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	**107.0**	0.75 J	ND	ND	ND	ND	ND	0.39 J	ND	0.31 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**141**	0.86 J	ND	ND	ND	ND	ND	0.40 J	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	**142**	0.61 J	ND	ND	ND	ND	ND	0.43 J	ND	0.47 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/24/13	**245**	0.75 J	ND	ND	ND	ND	ND	0.44 J	ND	0.70 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	179-189	11/03/10	**76.2**	0.70 J	ND	ND	ND	ND	ND	0.35 J	ND	0.42 J	ND	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND
			02/10/11	**19.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**12.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**10.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**7.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/12	**5.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**8.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/13/12	**8.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	**8.3**	ND	ND	ND	ND	ND	ND	0.21 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	**5.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/24/13	**6.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5	219-239	11/03/10	**27.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/09/11	**12.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**13.9**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**9.9**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**15.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/12	**12.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**26.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/13/12	**31.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	**21.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	**25.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	**18.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/24/13	**27.9**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-7 (continued)	3	129-149	11/02/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1140	ND	ND	ND
			02/10/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1210	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1340	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/24/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1340	ND	ND	ND
	4	179-189	11/03/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1910	ND	ND	29.6
			02/10/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1	ND	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3080**	ND	ND	**88.3**
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/24/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	**4260**	ND	ND	**116**
	5	219-239	11/03/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	754	ND	ND	ND
			02/09/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	674	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	960	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/24/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1270	ND	ND	19.8

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				5	5	33,000*	5	80		20	80	3	70	100	3	63,000*	NA	NA	20	5	100	1,000	2,000	3
Non-Residential - GW SWHS				5	5	92,000*	5	80		20	80	3	70	100	3	170,000	NA	NA	20	5	100	1,000	2,000	3
WT-MW-7 (continued)	6	280-307	11/04/10	61.5	0.65 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/09/11	46.5	0.54 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	131	0.73 J	ND	ND	ND	ND	ND	0.25 J	ND	0.38 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	53.3	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	15.4	0.57 J	ND	ND	ND	ND	ND	2.5	ND	0.25 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/12	17.1	0.22 J	ND	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	37.4	0.47 J	ND	ND	ND	ND	ND	0.36 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/13/12	50.3	0.63 J	ND	ND	ND	ND	ND	0.20 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	40.1	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	43.3	0.85 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	33.9	0.82 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/24/13	48.5	0.92 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7	322-352	11/04/10	79.5	1.8	ND	ND	ND	ND	ND	0.35 J	ND	0.46 J	ND	ND	0.56	ND	ND	ND	ND	ND	ND	0.74 J	ND
			11/12/10	75.4	1.5	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/09/11	74.4	0.77 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	80.5	0.92 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	81.8	0.91 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	40.2	1.1	ND	ND	0.47 J	ND	ND	2.0	ND	0.34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/12	20.9	0.38 J	ND	ND	ND	ND	ND	0.85 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	56.8	1.3	ND	ND	0.25 J	ND	ND	2.1 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/13/12	54.8	0.99 J	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/26/12	44.9	1	ND	ND	ND	ND	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/09/13	46	0.86 J	ND	ND	ND	ND	ND	0.40 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	37.2	0.90 J	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/24/13	47.9	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8	379-409	11/05/10	70.4	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/09/11	14.8	0.45 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	27.5	1.1	ND	ND	ND	ND	ND	0.60 J	ND	0.27 J	ND	ND	0.46 J	ND	ND	ND	ND	ND	ND	0.99 J	ND
			07/25/11	16.2	0.76 J	ND	ND	ND	ND	ND	0.47 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.73 J	ND
			12/28/11	18.0	0.84 J	ND	ND	ND	ND	ND	0.67 J	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.68 J	ND
			02/08/12	15.8	0.59 J	ND	ND	ND	ND	ND	0.42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	15.6	0.58 J	ND	ND	ND	ND	ND	0.36 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.66 J	ND
			07/13/12	17.2	0.69 J	ND	ND	ND	ND	ND	0.42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.74 J	ND
			10/26/12	15.1	0.64 J	ND	ND	ND	ND	ND	0.46 J	ND	ND	ND	ND	0.57 J	ND	ND	ND	ND	ND	ND	0.63 J	ND
			01/09/13	20.7	0.74 J	ND	ND	ND	ND	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.58 J	ND
			05/01/13	16.4	0.68 J	ND	ND	ND	ND	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.83 J	ND
			07/24/13	18.2	0.53 J	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.60 J	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-7 (continued)	6	280-307	11/04/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1360	121	ND	ND
			02/09/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1070	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1260	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/24/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1560	ND	ND	ND
	7	322-352	11/04/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/12/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1690	ND	ND	ND
			02/09/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1400	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1300	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/24/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1250	ND	ND	ND
	8	379-409	11/05/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	791	ND	ND	ND
			02/09/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	842	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	795	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/24/13	ND	ND	ND	ND	ND	ND	ND	ND	0.209	ND	ND	0.198	ND	ND	669	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-7 (continued)	9	454-500	11/05/10	**20.4**	0.83	ND	ND	ND	ND	ND	0.85 J	ND	0.27 J	ND	ND	0.99 J	ND	ND	ND	ND	ND	ND	1.0 J	ND
			02/09/11	**13.1**	0.67 J	ND	ND	ND	ND	ND	0.52 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/29/11	**17.4**	0.82 J	ND	ND	ND	ND	ND	0.68 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.67 J	ND
			07/25/11	**13.5**	0.61 J	ND	ND	ND	ND	ND	0.53 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**15.8**	0.67 J	ND	ND	ND	ND	ND	0.91 J	ND	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.72 J	ND
			02/08/12	**16**	0.60 J	ND	ND	ND	ND	ND	0.52 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**15.0**	0.56 J	ND	ND	ND	ND	ND	0.41 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.63 J	ND
			07/13/12	**14.4**	0.52 J	ND	ND	ND	ND	ND	0.43 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.65 J	ND
			10/26/12	**11.7**	0.56 J	ND	ND	ND	ND	ND	0.46 J	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.59 J	ND
			01/09/13	**21.2**	0.71 J	ND	ND	ND	ND	ND	0.45 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.78 J	ND
			05/01/13	**9.8**	0.44 J	ND	ND	ND	ND	ND	0.38 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.45 J	ND
			07/24/13	**18.4**	ND	ND	ND	ND	ND	ND	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.71 J	ND
WT-MW-8R	NA	97-117	10/27/10	**131**	4.3	ND	ND	0.42 J	ND	ND	1.9	ND	3.6	ND	ND	0.44 J	ND	ND	ND	ND	ND	ND	0.46 J	ND
			02/22/11	**152**	3.2	ND	ND	0.48 J	ND	ND	1.8	ND	1.6	ND	ND	5.2	ND	ND	0.49 J	ND	ND	ND	10.4	ND
			Duplicate	**148**	3.1	ND	ND	0.52 J	ND	ND	1.9	ND	1.8	ND	ND	5.7	ND	ND	0.49 J	ND	ND	ND	10.9	ND
			05/26/11	**119**	3.0	ND	ND	0.28 J	ND	ND	1.5	ND	2.4	ND	ND	3.9 J	ND	ND	ND	ND	ND	ND	6.5	ND
			08/12/11	**174**	3.2	ND	ND	0.44 J	ND	ND	2	ND	1.9	ND	ND	6.8	ND	ND	0.54 J	ND	ND	ND	11.9	ND
			12/13/11	**156**	3.3	ND	ND	0.35 J	ND	ND	1.5	ND	2.2	ND	ND	5.8	ND	ND	0.36 J	ND	ND	ND	7.3	ND
			03/01/12	**88.2**	2.1	ND	ND	0.27 J	ND	ND	1.3	ND	1.9	ND	ND	2.3 J	ND	ND	0.37 J	ND	ND	ND	3.5 J	ND
			05/11/12	**169**	2.7	ND	ND	0.30 J	ND	ND	1.5 B	ND	1.8	ND	ND	5.5	ND	ND	0.45 J	ND	ND	ND	8.5	ND
			08/03/12	**170**	2.7	ND	ND	0.35 J	ND	ND	1.7	ND	1.7	ND	ND	5.6	ND	ND	0.44 J	ND	ND	ND	9.2	ND
			Duplicate	**173**	2.6	ND	ND	0.34 J	ND	ND	1.6	ND	1.7	ND	ND	5.6	ND	ND	0.42 J	ND	ND	ND	9.4	ND
			Split	**120.0**	2.5	ND	ND	0.4 J	ND	ND	1.7	ND	1.5	ND	ND	5.9	ND	ND	0.41 J	ND	ND	ND	9.6	ND
			11/20/12	**158**	2.5	ND	ND	0.36 J	ND	ND	1.6	ND	1.7	ND	ND	3.7 J	ND	ND	0.43 J	ND	ND	ND	6.8	ND
			Duplicate	**167**	2.8	ND	ND	0.40 J	ND	ND	1.8	ND	1.8	ND	ND	4.8 J	ND	ND	0.47 J	ND	ND	ND	8.9	ND
			Split	**110.0**	2.3	ND	ND	0.4 J	ND	ND	1.7	ND	1.6	ND	ND	4.4	ND	ND	0.5 J	ND	ND	ND	9.4	ND
			01/28/13	**192**	2.9	ND	ND	0.33 J	ND	ND	1.6	ND	1.9	ND	ND	4.8	ND	ND	0.38 J	ND	ND	ND	7.8	ND
			04/30/13	**148**	2.3	ND	ND	0.28 J	ND	ND	1.3	ND	1.5	ND	ND	4.3 J	ND	ND	0.32 J	ND	ND	ND	6.4	ND
			07/09/13	**156**	2.5	ND	ND	0.28 J	ND	ND	1.4	ND	2.1	ND	ND	5.0	ND	ND	ND	ND	ND	ND	6.0	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-7 (continued)	9	454-500	11/05/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	898	ND	ND	ND
			02/09/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	776	ND	ND	ND
			04/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	713	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/24/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	645	ND	ND	ND
WT-MW-8R	NA	97-117	10/27/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	529	ND	ND	ND
			02/22/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	584	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	582	ND	ND	ND
			05/26/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/12/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/13/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			03/01/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	585	ND	**6.9**	ND
			05/11/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/03/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/20/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/28/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/09/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	570	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-9s	NA	125-165	10/22/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/03/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/12/11	2.1	0.82 J	ND	ND	ND	ND	ND	0.36 J	ND	ND	ND	ND	1.2 J	ND	ND	ND	ND	ND	ND	0.60 J	ND
			08/09/11	**18.0**	0.89 J	ND	ND	ND	ND	ND	0.63 J	ND	ND	ND	ND	2.5 J	ND	ND	ND	ND	ND	ND	0.78 J	ND
			12/13/11	4.4	0.50 J	ND	ND	ND	ND	ND	0.32 J	ND	ND	ND	ND	0.96 J	ND	ND	ND	ND	ND	ND	0.42 J	ND
			02/24/12	**10.7**	0.60 J	ND	ND	ND	ND	ND	0.38 J	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	ND	ND	ND
			05/09/12	**15.9**	0.76 J	ND	ND	ND	ND	ND	0.56 J	ND	ND	ND	ND	1.9 J	ND	ND	ND	ND	ND	ND	ND	ND
			08/01/12	**31.0**	0.69 J	ND	ND	ND	ND	ND	0.59 J	ND	ND	ND	ND	2.4 J	ND	ND	ND	ND	ND	ND	0.66 J	ND
			11/14/12	**22.4**	0.45 J	ND	ND	ND	ND	ND	0.47 J	ND	ND	ND	ND	0.89 J	ND	ND	ND	ND	ND	ND	ND	ND
			01/25/13	**34.0**	0.61 J	ND	ND	ND	ND	ND	0.48 J	ND	ND	ND	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND
			05/09/13	**28.8**	0.63 J	ND	ND	ND	ND	ND	0.63 J	ND	ND	ND	ND	0.22 J	ND	ND	ND	ND	ND	ND	0.55 J	ND
			07/29/13	**31.9**	0.63 J	ND	ND	ND	ND	ND	0.57 J	ND	ND	ND	ND	2.5 J	ND	ND	ND	ND	ND	ND	0.58 J	ND
WT-MW-9d	NA	250-300	10/22/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/04/11	1.6	0.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/19/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.37 J	ND	ND
			08/04/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.85 J	ND	ND
			12/01/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/16/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.23 J	ND	ND
			04/30/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/24/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/08/12	ND	ND	ND	ND	ND	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/15/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.69 J	ND	ND
			05/06/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-9Dss	NA	477-497	10/26/10	ND	0.48 J	3.5 J	ND	ND	ND	ND	1.5	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	0.56 J	ND	ND
			02/04/11	ND	ND	5.1 J	ND	ND	ND	ND	1.5	ND	ND	ND	ND	1.3 J	ND	ND	ND	ND	ND	ND	ND	ND
			05/23/11	ND	ND	ND	ND	ND	ND	0.24 J	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	ND
			08/08/11	ND	0.30 J	ND	ND	ND	ND	3.3	1.4	ND	ND	ND	ND	0.59 J	ND	ND	ND	ND	ND	0.82 J	ND	ND
			12/02/11	0.65 J	ND	ND	ND	ND	ND	ND	0.79 J	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	0.27 J	ND	ND
			02/22/12	0.80 J	3.3	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	1.5 J	ND	ND	ND	ND	ND	0.31 J	5.4	ND
			05/07/12	1.1	3.7	ND	ND	ND	ND	ND	0.56 J	ND	ND	ND	ND	1.9 J	ND	ND	ND	ND	ND	ND	7.4	ND
			07/31/12	0.75 J	2.8	ND	ND	ND	ND	0.78 J	0.56 J	ND	ND	ND	ND	0.58 J	ND	ND	ND	ND	ND	0.25 J	2.2 J	ND
			11/13/12	0.65 J	2.2	ND	ND	ND	ND	0.77 J	0.37 J	ND	ND	ND	ND	1.0 J	ND	ND	ND	ND	ND	ND	5.1	ND
			01/17/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.4 J	ND	ND
			05/02/13	1.0	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.85 J	ND	ND	ND	ND	ND	ND	3.9 J	ND
			07/17/13	1.5	3.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5 J	ND	ND	ND	ND	ND	ND	6.2	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				6	100	260	1,100	5	200	2	5	0.29	0.26	0.029	2	2	10	2,000	300	5	50
Non-Residential - GW SWHS				6	100	260	1,100	5	200	2	5	3.6	0.26	0.36	2	2	10	2,000	300	5	50
WT-MW-9s	NA	125-165	10/22/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1000	ND	ND	ND
			02/03/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.4	433	ND	ND	13.7
			05/12/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/09/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/13/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/24/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1230	ND	ND	ND
			05/09/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/01/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/14/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/25/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/29/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1230	ND	ND	ND
WT-MW-9d	NA	250-300	10/22/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.7	522	ND	ND	25
			02/04/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	986	ND	ND	ND
			05/19/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/04/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/01/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/16/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**10.9**	407	ND	ND	15.4
			04/30/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/24/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/08/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/15/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/06/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.9	383	ND	ND	ND
WT-MW-9Dss	NA	477-497	10/26/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**91.8**
			02/04/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	296	ND	ND
			05/23/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/08/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/02/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/22/12	2.3	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**124**
			05/07/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/31/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/17/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/02/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/17/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**100**

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-9DIs	NA	515-535	10/27/10	1.3	2.9	ND	ND	ND	ND	ND	0.62 J	ND	ND	ND	ND	3.2 J	ND	ND	ND	ND	ND	ND	5.5	ND
			02/07/11	1	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3 J	ND	ND	ND	ND	ND	ND	7	ND
			05/18/11	0.62 J	2.3	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	ND	4.6 J	ND
			08/09/11	1.2	4.1	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	2.1 J	ND	ND	ND	ND	ND	ND	9	ND
			12/05/11	1.3	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1 J	ND	ND	ND	ND	ND	ND	8.6	ND
			02/23/12	1.0	4.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	ND	7.5	ND
			05/08/12	1.6	4.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.7	ND
			08/01/12	1.4	3.9	ND	ND	ND	ND	ND	0.26 J	ND	ND	ND	ND	2.1 J	ND	ND	ND	ND	ND	ND	9.6	ND
			11/13/12	1.4	3.2	ND	ND	ND	ND	ND	0.25 J	ND	ND	ND	ND	1.7 J	ND	ND	ND	ND	ND	ND	9.4	ND
			01/17/13	0.74 J	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.97 J	ND	ND	ND	ND	ND	ND	6.3	ND
			05/07/13	1.3	3.0	ND	ND	ND	ND	ND	0.21 J	ND	ND	ND	ND	1.9 J	ND	ND	ND	ND	ND	ND	8.4	ND
			07/25/13	1.7	3.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.93 J	ND	ND	ND	ND	ND	ND	7.8	ND
WT-MW-10Ss	NA	52-82	10/25/10	ND	0.72 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/11/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/11/11	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/03/11	ND	0.41 J	ND	ND	ND	ND	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/23/11	ND	0.43 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/17/12	ND	0.37 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/19/12	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/13/12	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/11/13	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/03/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/11/13	ND	0.41 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-10Sd	NA	90-120	10/25/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/11/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/03/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/17/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/16/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/19/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/06/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/02/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-9DIs	NA	515-535	10/27/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	288	126	ND	**129**
			02/07/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	218	ND	ND	**70**
			05/18/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/09/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/05/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/23/12	ND	0.353	ND	ND	ND	0.353	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	25.5
			05/08/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/01/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/17/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/07/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-10Ss	NA	52-82	10/25/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1260	ND	ND	33.8
			02/11/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2520**	ND	4.8	ND
			05/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/23/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/17/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1310	101	ND	ND
			05/01/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/11/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/03/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1040	ND	ND	ND
WT-MW-10Sd	NA	90-120	10/25/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1720	ND	ND	ND
			02/14/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1790	ND	ND	ND
			05/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/17/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/16/12	2.3	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	1720	ND	ND	ND
			04/30/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/06/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/11/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/02/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1700	ND	ND	30.3

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-10Ds	NA	145-165	10/26/10	0.76	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/12/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/03/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/22/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/16/12	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/26/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/14/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/03/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/15/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-10Dd	NA	383-403	10/26/10	**6.3**	1.3	ND	ND	ND	ND	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/16/11	**9.1**	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/25/11	**10.1**	3.2	ND	ND	ND	ND	ND	0.29 J	ND	0.52 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.38 J	ND
			Duplicate	**10.1**	3.3	ND	ND	ND	ND	ND	0.22 J	ND	0.54 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.41 J	ND
			Split	**9.3**	3.1	ND	ND	ND	ND	ND	0.3 J	ND	0.6	ND	ND	0.5 J	ND	ND	ND	ND	ND	ND	0.5 J	ND
			08/11/11	**13.3**	0.85 J	ND	ND	ND	ND	ND	0.32 J	ND	0.64 J	ND	ND	0.64 J	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**13.4**	0.81 J	ND	ND	ND	ND	ND	0.37 J	ND	0.61 J	ND	ND	0.69 J	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**12.0**	3.7	ND	ND	ND	ND	ND	0.4 J	ND	0.7	ND	ND	0.5	ND	ND	ND	ND	ND	ND	0.6	ND
			12/12/11	**14.0**	4.0	ND	ND	ND	ND	ND	0.36 J	ND	0.86 J	ND	ND	0.67 J	ND	ND	ND	ND	ND	ND	0.84 J	ND
			02/27/12	**14.3**	4.2	ND	ND	ND	ND	ND	0.33 J	ND	0.73 J	ND	ND	0.59 J	ND	ND	ND	ND	ND	ND	0.86 J	ND
			05/09/12	**12.9**	4.0	ND	ND	ND	ND	ND	0.37 J	ND	0.93 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/02/12	**16.7**	4.5	ND	ND	ND	ND	ND	0.28 J	ND	0.73 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.89 J	ND
			11/15/12	**16.2**	3.8	ND	ND	ND	ND	ND	0.36 J	ND	0.72 J	ND	ND	0.62 J	ND	ND	ND	ND	ND	ND	0.91 J	ND
			01/24/13	**5.4**	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.29 J	ND	ND
			05/09/13	**14.3**	3.8	ND	ND	ND	ND	ND	0.35 J	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.51 J	ND
			07/26/13	**18.7**	4.8	ND	ND	ND	ND	ND	0.24 J	ND	0.74 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.48 J	ND
			Duplicate	**18.3**	4.6	ND	ND	ND	ND	ND	0.27 J	ND	0.76 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.51 J	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-10Ds	NA	145-165	10/26/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1340	ND	ND	31.6
			02/14/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1670	ND	ND	43.5
			05/12/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/03/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/22/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/16/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1980	ND	ND	**70.7**
			07/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/09/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/14/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/03/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/15/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2220**	ND	3	**86.1**
WT-MW-10Dd	NA	383-403	10/26/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1230	ND	ND	**72.1**
			02/16/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1180	ND	ND	**71.3**
			05/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/11/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/12/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/27/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1030	ND	ND	**64.3**
			05/09/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/02/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/15/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/24/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/26/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	709	ND	ND	**66.0**
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	742	ND	ND	**67.3**

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-11	1	87-115	11/24/10	**106**	1.5	ND	ND	ND	ND	ND	1.4	ND	0.29 J	ND	ND	4.1 J	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/11	**54.1**	1.2	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	1.5 J	ND	ND	ND	ND	ND	ND	ND	ND
			04/28/11	**21.2**	1.0	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	2.8 J	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**153**	1.3	ND	ND	ND	ND	ND	1.4	ND	0.69 J	ND	ND	3.2 J	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**13.0**	0.97 J	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	2.8 J	ND	ND	ND	ND	ND	ND	0.55 J	ND
			02/07/12	**22.3**	1.0	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	2.5 J	ND	ND	ND	ND	ND	ND	0.52 J	ND
			04/17/12	**41.0**	1.1	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	2.4 J	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**22**	0.8	ND	ND	0.2 J	ND	ND	1.1	ND	ND	ND	ND	2.9	ND	ND	ND	ND	ND	ND	0.6	ND
			07/13/12	**65.8**	1.2	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	3.4 J	ND	ND	ND	ND	ND	ND	0.64 J	ND
			Duplicate	**72**	1.4	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	3.7 J	ND	ND	ND	ND	ND	ND	0.70 J	ND
			Split	**42**	0.9	ND	ND	0.2 J	ND	ND	1.1	ND	0.1 J	ND	ND	3.5	ND	ND	ND	ND	ND	ND	0.7	ND
			10/25/12	**34.7**	1.1	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	3.5 J	ND	ND	ND	ND	ND	ND	0.66 J	ND
			Duplicate	**31.2**	0.97 J	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	3.3 J	ND	ND	ND	ND	ND	ND	0.57 J	ND
			Split	**28**	1.0	ND	ND	0.1 J	ND	ND	1.1	ND	0.1 J	ND	ND	3.4	ND	ND	ND	ND	ND	ND	0.6	ND
			01/08/13	**29.2**	1.3	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	3.8 J	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	**18.5**	0.82 J	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	3.3 J	ND	ND	ND	ND	ND	ND	0.68 J	ND
			07/19/13	**15.5**	ND	ND	ND	ND	ND	ND	0.86 J	ND	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND	ND
	2	120-145	11/23/10	**59.3**	1.4	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/11	**31**	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/28/11	**37.1**	1.0	ND	ND	ND	ND	ND	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**151**	1.4	ND	ND	ND	ND	ND	1.0	ND	0.34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**27.0**	0.66 J	ND	ND	ND	ND	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/07/12	**22.0**	0.73 J	ND	ND	ND	ND	ND	0.60 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**236**	1.6	ND	ND	ND	ND	ND	1.1	ND	0.72 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/13/12	**258**	1.2	ND	ND	ND	ND	ND	0.97 J	ND	0.46 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/25/12	**141**	1.1	ND	ND	ND	ND	ND	0.86 J	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.27 J	ND
			01/08/13	**77.9**	1.1	ND	ND	ND	ND	ND	0.71 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	**39.7**	0.67 J	ND	ND	ND	ND	ND	0.65 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/19/13	**42.4**	0.62 J	ND	ND	ND	ND	ND	0.54 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-11	1	87-115	11/24/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2250**	ND	ND	ND
			02/08/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2310**	ND	ND	ND
			04/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2180**	108	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2050**	ND	3.3	ND
	2	120-145	11/23/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1210	ND	ND	ND
			02/08/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1020	ND	ND	ND
			04/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1070	ND	ND	ND
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1140	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-11 (continued)	3	170-175	11/23/10	**44.6**	0.97	ND	ND	ND	ND	ND	1.2	ND	0.32 J	ND	ND	2.6 J	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/11	**20.5**	ND	ND	ND	ND	ND	ND	0.74 J	ND	ND	ND	ND	1.0 J	ND	ND	ND	ND	ND	ND	ND	ND
			04/28/11	**9.7**	0.33 J	ND	ND	ND	ND	ND	0.60 J	ND	ND	ND	ND	1.0 J	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**7.0**	0.32 J	ND	ND	ND	ND	ND	0.50 J	ND	ND	ND	ND	0.89 J	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	4.2	0.23 J	ND	ND	ND	ND	ND	0.46 J	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/07/12	2.2	ND	ND	ND	ND	ND	ND	0.38 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.39 J	ND	ND	ND
			04/17/12	4.3	0.29 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.51 J	ND	ND	ND
			07/13/12	3.6	0.27 J	ND	ND	ND	ND	0.42 J	0.69 J	ND	ND	ND	ND	0.63 J	ND	ND	ND	ND	ND	ND	ND	ND
			10/25/12	2.2	0.29 J	ND	ND	ND	ND	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	3.0	0.32 J	ND	ND	ND	ND	ND	0.60 J	ND	ND	ND	0.24 J	0.53 J	ND	ND	ND	ND	0.26 J	ND	ND	ND
			05/01/13	2.2	0.28 J	ND	ND	ND	ND	ND	0.54 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/19/13	2.9	ND	ND	ND	ND	ND	ND	0.48 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	200-230	11/23/10	**10.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/11	**9.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/28/11	**14.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/25/11	**13.9**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			12/28/11	**8.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/07/12	**6.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/17/12	**18.0**	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/13/12	**26.9**	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/25/12	**19.5**	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	**33.2**	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/01/13	**29.6**	0.39 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/18/13	**37.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5	310-340	11/22/10	**74.0**	1.5	ND	ND	ND	ND	ND	1.8	ND	0.48 J	ND	ND	1.6 J	ND	ND	ND	ND	ND	0.47 J	ND	ND
			02/08/11	**40.5**	1.4	ND	ND	ND	ND	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.53 J	ND	ND
			04/28/11	**49.3**	2.1	ND	ND	ND	ND	ND	1.7	ND	0.48 J	ND	ND	1.5 J	ND	ND	ND	ND	ND	0.49 J	ND	ND
			07/25/11	**36.7**	1.9	ND	ND	ND	ND	ND	1.5	ND	0.59 J	ND	ND	1.1 J	ND	ND	ND	ND	ND	0.47 J	ND	ND
			12/28/11	**39.7**	2.1	ND	ND	ND	ND	ND	0.97 J	ND	0.83 J	ND	ND	1.5 J	ND	ND	ND	ND	ND	0.45 J	ND	ND
			Duplicate	**33.0**	1.9	ND	ND	ND	ND	ND	0.88 J	ND	0.78 J	ND	ND	1.1 J	ND	ND	ND	ND	ND	0.42 J	ND	ND
			Split	**24.0**	2.0	ND	ND	ND	ND	ND	1	ND	0.9	ND	ND	1.2	ND	ND	ND	ND	ND	0.4 J	ND	ND
			02/07/12	**19.8**	1.5	ND	ND	ND	ND	ND	0.76 J	ND	0.98 J	ND	ND	0.51 J	ND	ND	ND	ND	ND	0.33 J	ND	ND
			Duplicate	**21.1**	1.5	ND	ND	ND	ND	ND	0.76 J	ND	1.0	ND	ND	0.54 J	ND	ND	ND	ND	ND	0.33 J	ND	ND
			Split	**33**	2.1	ND	ND	ND	ND	ND	0.9	ND	1	ND	ND	1	ND	ND	ND	ND	0.1 J	0.4 J	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-11 (continued)	3	170-175	11/23/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1290	ND	ND	**88.6**
			02/08/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3	890	ND	ND	**122.0**
			04/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.6	993	ND	ND	**109**
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/19/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	980	ND	ND	**62.7**
	4	200-230	11/23/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	647	ND	ND	32
			02/08/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	723	ND	ND	24.8
			04/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1110	ND	ND	37
			04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/18/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1410	ND	ND	47.1
	5	310-340	11/22/10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	547	ND	ND	**105**
			02/08/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	491	ND	ND	**92.0**
			04/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/25/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	435	ND	ND	**70.3**
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	433	ND	ND	**73.0**
			Split	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-11 (continued)	5	310-340	04/17/12	**33.7**	2.6	ND	ND	ND	ND	ND	0.99 J	ND	5.2	ND	ND	0.88 J	ND	ND	ND	ND	0.68 J	0.42 J	ND	ND
			Duplicate	**34.2**	2.7	ND	ND	ND	ND	ND	1.0	ND	5.4	ND	ND	0.98 J	ND	ND	ND	ND	0.66 J	0.41 J	ND	ND
			07/13/12	**34.0**	2.6	ND	ND	ND	ND	0.23 J	0.89 J	ND	5.0	ND	ND	1.0 J	ND	ND	ND	ND	0.27 J	0.44 J	ND	ND
			10/25/12	**23.9**	2.6	ND	ND	ND	ND	0.23 J	0.73 J	0.39 J	4.4	ND	ND	0.76 J	ND	ND	ND	ND	0.36 J	0.41 J	ND	ND
			01/08/13	**28.4**	2.6	ND	ND	ND	ND	ND	0.69 J	ND	5.8	ND	ND	0.78 J	ND	ND	ND	ND	0.32 J	0.37 J	ND	ND
			05/01/13	**17.3**	2.1	ND	ND	ND	ND	ND	0.54 J	ND	4.9	ND	ND	0.55 J	ND	ND	ND	ND	0.23 J	0.26 J	ND	ND
			07/18/13	**18.1**	2.2	ND	ND	ND	ND	ND	0.52 J	ND	6.2	ND	ND	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND
WT-MW-12	NA		02/15/11	**106**	0.32 J	ND	ND	ND	ND	ND	0.31 J	ND	ND	ND	ND	0.73 J	ND	ND	ND	ND	ND	ND	ND	ND
			05/26/11	**95.6**	ND	ND	ND	ND	ND	ND	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/12/11	**272.0**	0.76 J	ND	ND	ND	ND	ND	0.86 J	ND	0.49 J	ND	ND	1.3 J	ND	ND	ND	ND	ND	ND	1.2 J	ND
			12/13/11	**99.9**	0.28 J	ND	ND	ND	ND	ND	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.41 J	ND
			03/01/12	**146**	0.42 J	ND	ND	ND	ND	ND	ND	ND	0.40 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/11/12	**180**	0.27 J	ND	ND	ND	ND	ND	0.33 B	ND	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/03/12	**255**	0.52 J	ND	ND	ND	ND	ND	0.59 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.50 J	ND
			11/19/12	**161.0**	0.41 J	ND	ND	ND	ND	ND	0.41 J	ND	0.29 J	ND	ND	1.0 J	ND	ND	ND	ND	ND	ND	0.43 J	ND
			01/17/13	**77.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**95.1**	0.26 J	ND	ND	ND	ND	ND	0.23 J	ND	0.20 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.30 J	ND
			07/09/13	**96.0**	ND	ND	ND	ND	ND	ND	0.23 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-15D	NA		02/29/12	**13.3**	0.66 J	ND	ND	0.23 J	ND	ND	1.6	ND	ND	ND	ND	0.91 J	ND	ND	ND	ND	ND	ND	ND	10.8 B
			05/10/12	**15.1**	0.62 J	ND	ND	ND	ND	ND	0.86 B	ND	ND	ND	ND	0.82 J	ND	ND	ND	ND	ND	ND	0.98 J	ND
			08/02/12	**13.5**	0.64 J	ND	ND	ND	ND	ND	0.72 J	ND	ND	ND	ND	0.92 J	ND	ND	ND	ND	ND	ND	1.1 J	ND
			11/15/12	**10.9**	0.59 J	ND	ND	ND	ND	ND	0.66 J	ND	ND	ND	ND	0.91 J	ND	ND	ND	ND	ND	ND	0.99 J	ND
			01/24/13	**14.9**	0.65 J	ND	ND	ND	ND	ND	0.66 J	ND	ND	ND	ND	0.70 J	ND	ND	ND	ND	ND	ND	0.78 J	ND
			05/09/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/15/13	**10.9**	0.45 J	ND	ND	ND	ND	ND	0.44 J	ND	ND	ND	ND	0.81 J	ND	ND	ND	ND	ND	ND	0.82 J	ND
WT-MW-16SR (Westbay)	1	SWL-65	07/13/12	**48.8**	0.31 J	ND	ND	ND	ND	ND	1.3	ND	0.27 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/25/12	**33.1**	0.34 J	ND	ND	ND	ND	ND	1.4	0.37 J	0.57 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	**17**	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**14.8**	0.27 J	ND	ND	ND	ND	ND	0.93 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/03/13	**13.9**	ND	ND	ND	ND	ND	ND	0.97 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	70-130	07/13/12	**703**	1.6	ND	ND	0.25 J	ND	ND	2.1	ND	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.92 J	ND
			10/25/12	**565**	1.5	ND	ND	0.26 J	ND	ND	1.9	ND	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.62 J	ND
			01/08/13	**762**	1.6	ND	ND	ND	ND	ND	1.9	ND	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**820**	1.3 J	ND	ND	ND	ND	ND	1.5 J	ND	3.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/03/13	**851**	1.2 J	ND	ND	ND	ND	ND	1.6 J	ND	3.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-11 (continued)	5	310-340	04/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/18/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	607	ND	ND	**51.4**
WT-MW-12	NA		02/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/26/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/12/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/13/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			03/01/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	238	ND	ND	ND
			05/11/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/03/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/19/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/17/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/09/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-15D	NA		02/29/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	606	ND	ND	**1240.0**
			05/10/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/02/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/15/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/24/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/15/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	529	ND	3.1	**85.6**
WT-MW-16SR (Westbay)	1	SWL-65	07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/03/13	1.1 JB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	70-130	07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/03/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-16SR (Westbay)	3	135-180	07/13/12	**379**	1.3	ND	ND	ND	ND	ND	0.84 J	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/25/12	**330**	1.3	ND	ND	ND	ND	ND	0.86 J	0.32 J	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	**377**	1.5	ND	ND	ND	ND	ND	0.95 J	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**815**	1.7 J	ND	ND	ND	ND	ND	1.2 J	ND	2.9 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/03/13	**533**	1.2 J	ND	ND	ND	ND	ND	0.64 J	ND	1.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-16D (Westbay)	1	225-260	12/19/12	**55.3**	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**56.8**	1.7	ND	ND	ND	ND	ND	ND	ND	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**48.4**	1.7	ND	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/03/13	**54**	1.5	ND	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	265-310	12/19/12	**73.5**	4.5	ND	ND	ND	ND	ND	ND	ND	0.59 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**61.5**	3.6	ND	ND	ND	ND	ND	ND	ND	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**66.7**	4.0	ND	ND	ND	ND	ND	ND	ND	0.60 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/03/13	**47.4**	2.8	ND	ND	ND	ND	ND	ND	ND	0.60 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3	315-329	12/19/12	**51.8**	2.9	ND	ND	ND	ND	ND	0.25 J	ND	0.37 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/10/13	**57.1**	3.1	ND	ND	ND	ND	ND	ND	ND	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**49.4**	3.0	ND	ND	ND	ND	ND	0.25 J	ND	0.46 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/03/13	**44.9**	2.9	ND	ND	ND	ND	ND	0.26 J	ND	0.51 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-17 (Westbay)	1	245-280	07/13/12	ND	0.87 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.64 J	ND	ND
			10/25/12	ND	0.54 J	ND	ND	ND	ND	ND	ND	0.34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.49 J	ND	ND
			01/08/13	ND	0.49 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.42 J	ND	ND
			05/01/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.24 J	ND	ND
			07/18/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	285-340	07/13/12	ND	1.23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.68 J	ND	ND
			10/25/12	ND	0.79 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.60 J	ND	ND
			01/08/13	ND	0.94 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.60 J	ND	ND
			05/01/13	ND	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.38 J	ND	ND
			07/18/13	ND	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.34 J	ND	ND
	3	435-500	07/13/12	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND
			10/25/12	ND	0.29 J	ND	ND	ND	ND	ND	ND	ND	0.51 J	ND	ND	ND	ND	ND	ND	ND	ND	0.27 J	ND	ND
			01/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.91 J	ND	ND	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND
			05/01/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.89 J	ND	ND	ND	ND	ND	ND	ND	ND	0.34 J	ND	ND
			07/18/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	0.25 J	0.37 J	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-16SR (Westbay)	3	135-180	07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/03/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1580	ND	ND	ND
WT-MW-16D (Westbay)	1	225-260	12/19/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/03/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	265-310	12/19/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/03/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3	315-329	12/19/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/10/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/03/13	1.5 JB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-MW-17 (Westbay)	1	245-280	07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/18/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	270	ND	ND	ND
	2	285-340	07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/18/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	22.3
	3	435-500	07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/18/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.4

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-MW-17 (Westbay)	4	505-522	07/13/12	ND	0.65 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND
			10/25/12	ND	0.24 J	ND	ND	ND	ND	0.82 J	ND	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND
			01/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	0.27 J	ND	ND
			05/01/13	0.46 J	ND	ND	ND	ND	ND	0.46 J	ND	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	0.27 J	0.27 J	ND	ND
			07/08/13	0.38 J	ND	ND	ND	ND	ND	0.34 J	ND	ND	0.71 J	ND	ND	ND	ND	ND	ND	ND	0.27 J	0.25 J	ND	ND
WT-MW-18 (Westbay)	1	95-115	12/05/12	**45.2**	0.48 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	**37.5**	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**58**	0.40 J	ND	ND	ND	ND	ND	0.22 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/02/13	**84.0**	0.57 J	ND	ND	ND	ND	ND	0.35 J	ND	0.34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	120-153	12/05/12	**44.7**	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	**137**	0.77 J	ND	ND	ND	ND	ND	ND	ND	0.73 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**166**	0.74 J	ND	ND	ND	ND	ND	0.45 J	ND	0.79 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/02/13	**165**	0.67 J	ND	ND	ND	ND	ND	0.56 J	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3	158-180	12/05/12	**66.5**	0.23 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	**86.2**	0.32 J	ND	ND	ND	ND	ND	ND	ND	0.23 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**97.9**	0.42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/02/13	**153**	0.49 J	ND	ND	ND	ND	ND	0.33 J	ND	0.71 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	185-210	12/05/12	**70.2**	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	**75.4**	0.43 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**92.8**	0.57 J	ND	ND	ND	3.8 J	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/02/13	**128**	0.53 J	ND	ND	ND	3.8 J	ND	0.30 J	ND	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5	215-255	12/05/12	**80.7**	1.5	ND	ND	ND	ND	ND	ND	ND	0.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	**87.5**	1.3	ND	ND	ND	ND	ND	ND	ND	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**73.8**	0.91 J	ND	ND	ND	3.1 J	ND	0.21 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/02/13	**109**	0.89 J	ND	ND	ND	3.1 J	ND	0.30 J	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6	260-300	12/05/12	**60.7**	1.4	ND	ND	ND	ND	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/30/13	**64.4**	0.99 J	ND	ND	ND	ND	ND	0.22 J	ND	0.27 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/02/13	**91.6**	0.99 J	ND	ND	ND	ND	ND	0.26 J	ND	0.49 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-MW-17 (Westbay)	4	505-522	07/13/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/08/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19.2
WT-MW-18 (Westbay)	1	95-115	12/05/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/02/13	ND	ND	ND	0.221	ND	ND	ND	1.9 JB	ND	ND	ND	ND	ND	ND	839	ND	ND	ND
	2	120-153	12/05/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/02/13	ND	ND	ND	ND	ND	ND	ND	**2.4 B**	ND	ND	ND	ND	ND	ND	1520	ND	ND	ND
	3	158-180	12/05/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/02/13	ND	ND	ND	0.185	ND	ND	ND	**2.2 B**	ND	ND	ND	ND	ND	ND	**3070**	ND	ND	ND
	4	185-210	12/05/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/02/13	ND	ND	ND	0.177	ND	ND	ND	**2.2 B**	ND	ND	ND	ND	ND	ND	**2830**	ND	ND	ND
	5	215-255	12/05/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/02/13	ND	ND	ND	0.197	ND	ND	ND	**4.1 B**	ND	ND	ND	ND	ND	ND	**2670**	ND	ND	ND
	6	260-300	12/05/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			04/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/02/13	ND	ND	ND	ND	ND	ND	ND	**2.4 B**	ND	ND	ND	ND	ND	ND	**2700**	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
ESA-MW-101s	NA		01/28/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/05/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/27/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/14/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/20/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/10/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/02/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-101d	NA		01/28/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.31 J	ND	ND
			05/06/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/27/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/14/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/10/12	ND	ND	ND	ND	ND	ND	ND	0.22 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/02/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-102s	NA		01/31/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/06/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/26/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/20/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/11/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-102d	NA		01/31/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/06/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/26/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/15/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/20/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/11/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
ESA-MW-101s	NA		01/28/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	728	ND	ND	ND
			05/05/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/27/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/14/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	577	154	ND	ND
			04/20/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/10/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/02/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ESA-MW-101d	NA		01/28/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	542	ND	ND	**237**
			05/06/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/27/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/14/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	425	ND	ND	**400**
			04/23/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/10/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/02/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ESA-MW-102s	NA		01/31/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1150	ND	ND	**79.3**
			05/06/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/26/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/15/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	993	ND	ND	41.2
			04/20/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/11/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/23/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ESA-MW-102d	NA		01/31/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1410	ND	ND	ND
			05/06/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/26/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/15/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/07/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1490	ND	ND	ND
			04/20/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/11/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/23/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
ESA-MW-103s	NA		02/01/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/09/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/26/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/14/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/11/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-103d	NA		02/01/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/09/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/26/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/14/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/17/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			10/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-104s	NA		12/09/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Split	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/23/12	ND	ND	ND	ND	ND	ND	ND	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.7	ND
			05/02/12	ND	ND	ND	ND	ND	ND	ND	0.45 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13.5	ND
			07/26/12	ND	ND	ND	ND	ND	ND	ND	0.45 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13.0	ND
			11/09/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.1	ND
			01/15/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.7	ND
			05/01/13	ND	ND	ND	ND	ND	ND	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.31 J	ND
			07/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.4 J	ND
ESA-MW-104m	NA		12/09/11	1.1	0.87 J	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	8.2	ND	ND	ND	ND	ND	ND	1.3 J	ND
			02/27/12	1.1	0.82 J	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	7.6	ND	ND	ND	ND	ND	ND	1.3 J	ND
			05/02/12	1.1	0.77 J	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	7.8	ND	ND	ND	ND	ND	ND	1.1 J	ND
			07/27/12	1.2	0.81 J	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	8.5	ND	ND	ND	ND	ND	ND	1.3 J	ND
			11/12/12	1.3	0.76 J	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	8.1	ND	ND	ND	ND	ND	ND	1.4 J	ND
			01/16/13	1.6	0.79 J	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	8.3	ND	ND	ND	ND	ND	ND	1.2 J	ND
			05/08/13	1.1	0.71 J	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	7.2	ND	ND	ND	ND	ND	ND	1.2 J	ND
			07/17/13	1.2	0.56 J	ND	ND	ND	ND	ND	0.91 J	ND	ND	ND	ND	7.0	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
ESA-MW-103s	NA		02/01/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**6400**	ND	ND	ND
			05/09/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/26/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/14/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**6560**	ND	ND	ND
			04/23/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/11/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/23/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ESA-MW-103d	NA		02/01/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1620	ND	ND	ND
			05/09/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/26/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/14/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1740	ND	ND	ND
			04/23/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			10/23/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ESA-MW-104s	NA		12/09/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	255	ND	ND	23.9
			05/02/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/09/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/15/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/01/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-104m	NA		12/09/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/27/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3260**	ND	3.6	ND
			05/02/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/27/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/16/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/08/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/17/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3260**	ND	3.7	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
ESA-MW-104d	NA		12/12/11	**16.1**	0.91 J	ND	ND	ND	ND	ND	0.53 J	ND	ND	ND	ND	1.9 J	ND	ND	ND	ND	ND	ND	0.70 J	ND
			02/28/12	**14.7**	0.86 J	ND	ND	ND	ND	ND	0.53 J	ND	ND	ND	ND	1.7 J	ND	ND	ND	ND	ND	ND	0.57 J	ND
			Duplicate	**15.0**	0.86 J	ND	ND	ND	ND	ND	0.47 J	ND	ND	ND	ND	1.8 J	ND	ND	ND	ND	ND	ND	0.56 J	ND
			Split	**14**	0.8	ND	ND	ND	ND	ND	0.5 J	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND	0.6	ND
			05/04/12	**11.6**	0.73 J	ND	ND	ND	ND	ND	0.49 J	ND	ND	ND	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND
			Duplicate	**11.7**	0.71 J	ND	ND	ND	ND	ND	0.48 J	ND	ND	ND	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND
			Split	**11**	0.8	ND	ND	ND	ND	ND	0.5	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	0.7	ND
			07/30/12	**16.0**	0.95 J	ND	ND	ND	ND	ND	0.53 J	ND	ND	ND	ND	2.0 J	ND	ND	ND	ND	ND	ND	0.64 J	ND
			11/14/12	**20.6**	0.75 J	ND	ND	ND	ND	ND	0.58 J	ND	ND	ND	ND	2.1	ND	ND	ND	ND	ND	ND	0.69 J	ND
			01/25/13	**28.1**	0.85 J	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	ND	2.0 J	ND	ND	ND	ND	ND	ND	0.54 J	ND
			05/09/13	**20.0**	0.69 J	ND	ND	ND	ND	ND	ND	ND	0.60 J	ND	ND	2.0 J	ND	ND	ND	ND	ND	ND	0.59 J	ND
			07/29/13	**22.4**	0.66 J	ND	ND	ND	ND	ND	0.53 J	ND	ND	ND	ND	2.4 J	ND	ND	ND	ND	ND	ND	0.62 J	ND
ESA-MW-105Ss	NA		11/22/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/14/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/26/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/17/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/02/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-105Sd	NA		11/22/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/26/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/18/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/05/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-105Dss	NA		11/30/11	ND	ND	ND	ND	ND	ND	0.26 J	ND	0.47 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.31 J	ND	ND
			02/20/12	ND	ND	ND	ND	ND	ND	0.77 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.46 J	ND	ND
			04/25/12	ND	ND	ND	ND	ND	ND	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.35 J	ND	ND
			07/20/12	ND	ND	05 J	ND	ND	ND	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.25 J	ND	ND
			11/07/12	ND	ND	ND	ND	ND	ND	0.77 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESA-MW-105Dls	NA		11/30/11	ND	ND	ND	ND	ND	ND	1.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/21/12	ND	ND	ND	ND	ND	ND	0.96 J	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.79 J	ND	0.31 J
			04/26/12	ND	ND	ND	ND	ND	ND	3.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.32 J	ND	ND
			07/26/12	ND	ND	ND	ND	ND	ND	3.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33 J	ND	ND
			11/08/12	ND	ND	ND	ND	ND	ND	14.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WT-VI-201	NA		02/16/11	ND	1.2	ND	ND	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/13/11	1.3	1.2	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/08/11	0.73 J	1.0	ND	ND	ND	ND	ND	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/29/11	0.91 J	1.3	ND	ND	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/21/12	0.79 J	1.1	ND	ND	ND	ND	ND	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/03/12	0.59 J	0.68 J	ND	ND	ND	ND	ND	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/27/12	0.85 J	0.82 J	ND	ND	ND	ND	ND	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/12/12	0.47 J	0.77 J	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/14/13	ND	0.59 J	ND	ND	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/06/13	0.42 J	0.57 J	ND	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/13	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				6	100	260	1,100	5	200	2	5	0.29	0.26	0.029	2	2	10	2,000	300	5	50
Non-Residential - GW SWHS				6	100	260	1,100	5	200	2	5	3.6	0.26	0.36	2	2	10	2,000	300	5	50
ESA-MW-104d	NA		12/12/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/28/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2120	ND	ND	ND
			Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2070	ND	ND	ND
			Split	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/04/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Duplicate	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Split	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/30/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/14/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/25/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/09/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/29/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2000	ND	ND	ND
ESA-MW-105Ss	NA		11/22/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/14/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	942	ND	ND	94.2
			04/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/17/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/02/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ESA-MW-105Sd	NA		11/22/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/08/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	559	ND	ND	ND
			04/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/18/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/05/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ESA-MW-105Dss	NA		11/30/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/20/12	ND	ND	0.135	0.151	ND	ND	0.135	ND	ND	ND	ND	0.135	0.151	ND	ND	ND	ND	ND
			04/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/20/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/07/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ESA-MW-105Dls	NA		11/30/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/21/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			04/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/26/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/08/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WT-VI-201	NA		02/16/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/13/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/08/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/21/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1900	ND	ND	ND
			05/03/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/27/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/14/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/06/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2590	258	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	PCE µg/L	TCE µg/L	Acetone µg/L	Benzene µg/L	Bromodichloro-methane µg/L	2-Butanone (MEK) µg/L	Carbon Disulfide µg/L	Chloroform µg/L	Chloromethane µg/L	cis 1,2- DCE µg/L	trans 1,2-DCE µg/L	Ethylbenzene µg/L	Freon 113 µg/L	Methylcyclohexane µg/L	Methylcyclohexane µg/L	MTBE µg/L	Methylene Chloride µg/L	Styrene µg/L	Toluene µg/L	Freon 11 µg/L	Xylene (Total) µg/L
Residential - GW SWHS				**5**	**5**	**33,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**63,000***	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
Non-Residential - GW SWHS				**5**	**5**	**92,000***	**5**	**80**		**20**	**80**	**3**	**70**	**100**	**3**	**170,000**	**NA**	**NA**	**20**	**5**	**100**	**1,000**	**2,000**	**3**
WT-VI-202	NA		02/08/11	ND	2.0	ND	ND	ND	ND	ND	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/16/11	ND	1.7	ND	ND	ND	ND	ND	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			08/08/11	ND	1.7	ND	ND	ND	ND	ND	2.8	ND	ND	ND	ND	0.72 J	ND	ND	ND	ND	ND	ND	ND	ND
			12/05/11	ND	1.3	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			02/21/12	ND	1.2	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/03/12	ND	1.3	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/27/12	ND	1.3	ND	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			11/12/12	ND	1.0	ND	ND	ND	ND	ND	1.6	0.60 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			01/15/13	ND	1.2	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/07/13	ND	0.84 J	ND	ND	ND	ND	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			07/16/13	ND	1.1	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2-2
LOCKHEED MARTIN CORPORATION
HISTORIC QUARTERLY GROUNDWATER ANALYTICAL RESULTS
October 2009 - July 2013

Monitoring Well	Zone	Interval (ft bgs)	Sample Date	bis(2-ethylhexyl) Phthalate, µg/L	Naphthalene µg/L	Fluoranthene µg/L	Phenanthrene µg/L	1,2-Dichloroethane µg/L	1,1,1-Trichloroethane µg/L	Vinyl Chloride µg/L	Dimethyl Phthalate µg/L	Benzo(a)anthra- cene, µg/L	Benzo(g,h,i) perylene, µg/L	Dibenzo(a,h)anthracene ,µg/L	Chrysene µg/L	Indeno(1,2,3-cd) pyrene, µg/L	Arsenic µg/L	Barium µg/L	Iron µg/L	Lead µg/L	Manganese* µg/L
Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**0.29**	**0.26**	**0.029**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
Non-Residential - GW SWHS				**6**	**100**	**260**	**1,100**	**5**	**200**	**2**	**5**	**3.6**	**0.26**	**0.36**	**2**	**2**	**10**	**2,000**	**300**	**5**	**50**
WT-VI-202	NA		02/08/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
			05/16/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			08/08/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			12/05/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			02/21/12	2.0	0.189	ND	ND	2.0	0.189	ND	ND	ND	ND	ND	ND	ND	ND	**2130**	ND	ND	ND
			05/03/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/27/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			11/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			01/15/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			05/07/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			07/16/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1840	ND	ND	ND

Notes & Abbreviations:

Metals which are not regulated are not shown in this table
* Manganese is regulated as a secondary contaminant
µg/L: micrograms per liter
PCE: Tetrachloroethene
TCE: Trichloroethene
Freon 11: Trichloroflouromethane
Freon 113: 1,1,2-Trichloro-1,2,2-Triflouroethane
cis 1,2-DCE: cis 1,2-Dichloroethene
trans 1,2-DCE: trans 1,2-Dichloroethene
MTBE: Methyl Tert Butyl Ether
ND: Compound not detected
NS: Not sampled for specified parameter
MEK: Methyl ethyl ketone
Bold & highlighted: Indicates that the applicable PADEP Water Quality Standard was exceeded as referenced
J: Represents an estimated concentration below laboratory quantitation limits
B: Indicates analyte found in associated method blank
D: The target analyte was diluted and re-analyzed at a later date and time
NA: Not applicable
Residential - GW SWHS: PADEP's Medium Specific Concentrations (MSCs) for Organic Regulated Substances in Groundwater for Residential Used Aquifers - Groundwater Statewide Health Standards
Non-Residential - GW SWHS: PADEP's Medium Specific Concentrations (MSCs) for Organic Regulated Substances in Groundwater for Non-Residential Used Aquifers - Groundwater Statewide Health Standards

TABLE 2-3
LOCKHEED MARTIN CORPORATION
SUMMARIZED BOREHOLE LITHOLOGY DESCRIPTIONS

Well ID and Approx GSE (feet msl)	Interval Depth (feet bgs)	Approximate Elevation (feet amsl)	Lithology	Description
WT-MW-1 219'	0-6	219-213	Fill (probable)	Gravel fill and weathered sandstone with silt, gray to tan.
	6-490	213-(-271)	Stockton Formation (sandstone/siltstone)	Interbedded sandstone and siltstone; sandstone typically arkosic and occasionally conglomeritic; siltstone typically micaceous; color varying shades of red, red-brown, gray, and brownish gray; argillaceous to siliceous cemented; occasional carbonate nodules and mineralized fractures; strength predominately moderate; first groundwater observed by borehole video at approximately 49 feet bgs in the form of cascading water.
	490 to 510	(-271)-(-510)	Ledger Formation (dolomite)	Dolomite varies in color from light brown gray to dark red brown to light yellow brown; large fractures produce yield in excess of 70 gpm.
WT-MW-2 220'	0-6	220-214	Fill (probable)	Fine to medium sand, some weathered irregular sandstone fragments, little interbedded silty clay lenses, red to brown, dry
	6-213	214-(-7)	Stockton Formation (sandstone/siltstone)	Fine to medium grained sandstone, trace clay, some interbedded brown siltstone, red to gray; high angle fractures; Depth to water was 50 feet bgs.
WT-MW-3 229'	0-6	229-223	Fill (probable)	Fine to medium sand, little silty clay, red-brown, dry
	6-265.5	223-(-36.5)	Stockton Formation (sandstone/siltstone)	Sandstone with interbedded silty clay lenses and siltstone; brown to red gray ; shale lenses observed below 121 feet bgs. Water observed at 60 feet bgs.
WT-MW-4 230'	0-12	230--218	Fill (probable)	Medium sand (fill), some medium irregular gravel, brown, dry.
	12-171.5	218-58.5	Stockton Formation (sandstone/siltstone)	Sandstone with interbedded siltstone; arkosic, (50-88.5 feet bgs) silty clay lenses, red to green to gray to brown.
WT-MW-5 218'	0-6	218-212	Fill (probable)	Gravel fill and weathered sandstone, gray to tan.
	6-262	212-(-44)	Stockton Formation (sandstone/siltstone)	Sandstone; arkosic to 97 feet bgs; red, gray, and tan; trace of clay and siltstone. Wetness at approximately 68 bgs.

TABLE 2-3
LOCKHEED MARTIN CORPORATION
SUMMARIZED BOREHOLE LITHOLOGY DESCRIPTIONS

Well ID and Approx GSE (feet msl)	Interval Depth (feet bgs)	Approximate Elevation (feet amsl)	Lithology	Description
WT-MW-5D 218'	0-14	218-204	Fill (probable)	Sand and gravel with little silt, trace of clay; dark yellowish brown; angular to rounded sand and gravel; sorting poor; non-plastic; non-cemented.
	14-290	204-(-72)	Stockton Formation (sandstone/siltstone)	Sandstone fine to coarse grained with interbedded siltstone (95 to 110, 187 to 210, and 227 to 239 feet bgs); color varying shades of red, red-brown, grayish orange, and greenish gray; siliceous cemented; strength very weak to weak becoming moderate and then strong below 210 bgs; weathering high to slight with depth, becoming fresh at 187 bgs; upper contacts sharp to gradational; sandstone secondary porosity moderate. Competent bedrock encountered at 39 bgs. First groundwater observed at 52 bgs.
	290-320	(-72)-(-102)	Ledger Formation (dolomite)	Color brownish-gray; calcium cemented; strength strong; weathering slight; upper contact with Stockton Formation sharp.
WT-MW-6 244'	0-10	244-234	Fill (probable)	Silty clay, some firm sand, little weathered sandstone fragments, dry.
	10-272	234-(-28)	Stockton Formation (sandstone/siltstone)	Sandstone with little irregular sandstone fragments, red-gray-brown, arkosic at approximately 13 - 29 feet bgs. Irregular quarts fragments along with Shale and quartzite fanglomerate. Siltstone dark gray to red color, rounded cobbles (67-69 feet bgs). Some interbedded shale/ mudstone. Multidirectional fractures at 75 feet bgs. First appearance of water at 83 feet bgs.

TABLE 2-3
LOCKHEED MARTIN CORPORATION
SUMMARIZED BOREHOLE LITHOLOGY DESCRIPTIONS

Well ID and Approx GSE (feet msl)	Interval Depth (feet bgs)	Approximate Elevation (feet amsl)	Lithology	Description
WT-MW-7 219'	0-9	219-210	Fill (probable)	Sandy silt; soft drilling to 5.0 feet bgs; depth to bedrock uncertain.
	9-500	210-(-281)	Stockton Formation (sandstone/siltstone)	Sandstone with interbedded siltstone, becoming predominately siltstone with thinly interbedded sandstone and shale below 300 feet bgs; sandstone locally conglomeritic between 145 to 205 feet bgs; color varying shades of red, red-brown, gray, and brownish gray; argillaceous to siliceous cemented; occasional nodules and thin beds of carbonate rock; locally fresh between 123 to 300 feet bgs; strength predominately moderate from 35 to 300 feet bgs and becoming very strong to weak at depth below 350 feet bgs; where the formation is highly fractured, upper contacts sharp to gradational; sandstone secondary porosity moderate to high. Competent bedrock encountered at 40 feet bgs. First groundwater observed at approximately 71 feet bgs; cascading water identified at 71.6, 77.8, 104.3-104.7, and 117.6 feet bgs in the open borehole. The borehole video revealed air bubbles were entering the borehole at a depth of 222.3 feet bgs two days following the cessation of drilling activities. This was interpreted to indicate the bottom of a confining zone separating the shallow and deep aquifers beneath the site.
WT-MW-8R 167'	0-10	167-157	Fill (probable)	Sand with little silt; color grayish brown; sand sub angular; sorting poor; non-plastic; non-cemented; strength soft
	10-60	157-107	Stockton Formation (sandstone/siltstone)	Sandstone with interbedded siltstone (20 to 40 feet bgs); color varying shades of red, red-brown, and grayish pink; siliceous cemented; strength extremely weak to weak with depth; weathering high to moderate with depth; upper contact with overburden gradational, internal sandstone/shale contacts sharp above and gradation below; sandstone secondary porosity high
	60-97	107-70	Ledger Formation (dolomite)	Color pale reddish brown alternating with medium gray and very pale orange; calcium cemented; strength moderate; weathering slight (moderate 60 to 71 feet bgs); upper contact with Stockton Fm sharp. First significant groundwater observed at 96 feet bgs.
	97-107	70-60	Void (open)	Water-filled
	107-121	60-46	Void (open)	Clay-filled. Depth to bottom of void is undetermined.

TABLE 2-3
LOCKHEED MARTIN CORPORATION
SUMMARIZED BOREHOLE LITHOLOGY DESCRIPTIONS

Well ID and Approx GSE (feet msl)	Interval Depth (feet bgs)	Approximate Elevation (feet amsl)	Lithology	Description
WT-MW-9 219'	0-11	219-208	Fill (probable)	Sand and gravel, little silt; dark reddish-brown; sand and gravel angular to sub angular; poorly sorted; soft; non-plastic; moist.
	11-300	208-(-81)	Stockton Formation (sandstone/siltstone)	Interbedded sandstone and siltstone; sandstone typically arkosic; siltstone typically micaceous; color predominately dark reddish-brown or grayish-brown; siliceous cemented; strength predominately moderate; upper contacts sharp or gradational; porosity predominately moderate; weathering moderate, becoming slight or fresh below 58 feet bgs; first groundwater entry observed at 129 to 131 feet bgs (2 to 3 gpm).
WT-MW-9D 219'	0-12	219-207	Fill (probable)	Silty sand, trace gravel; soft drilling; dry to moist; reddish yellow to reddish brown.
	12-506	207-(-287)	Stockton Formation (sandstone/siltstone)	Sandstone with interbedded siltstone; sandstone micaceous (184 to 205, 250 to 278, and 303 to 370 feet bgs), arkosic (370 to 377 feet bgs); sandstone predominately light gray in color; siltstone dark reddish brown in color; siliceous cemented to 370 feet bgs, calcite cemented from 370 feet bgs to total depth; strength very weak to moderate to 40 feet bgs, strong from 40 feet bgs to total depth; weathering complete to slight (12 to 74 feet bgs) and fresh below 74 feet bgs to total depth; upper contacts gradational to 57 feet bgs and predominately sharp from 57 feet bgs to total depth; porosity predominately moderate down to 74 feet bgs and low from 74 feet bgs to total depth.
	506-535	(-287)-(-316)	Ledger Formation (dolomite)	Medium gray in color; strength strong; weathering fresh; upper contact with Stockton Formation sharp; porosity low.
WT-MW-10S 222'	0-10	222-212	Fill (probable)	Silty sand, trace gravel; soft drilling; dry to moist; reddish brown.
	10-200	212-122	Stockton Formation (sandstone/siltstone)	Sandstone with interbedded siltstone below 148 feet bgs; sandstone micaceous (22 to 132 and 148 to 176 feet bgs) and arkosic (22 to 125 and 132 to 148 feet bgs); sandstone predominately light gray in color; siltstone and mixed sandstone/siltstone intervals predominately dark reddish brown in color; siliceous cemented; strength very weak (0 to 22 feet bgs) moderate below to total depth; weathering fresh to high (0 to 125 feet bgs), fresh below 125 feet bgs to total depth; upper contacts gradational to sharp; porosity predominately low. First groundwater observed at approximately 161 feet bgs.

TABLE 2-3
LOCKHEED MARTIN CORPORATION
SUMMARIZED BOREHOLE LITHOLOGY DESCRIPTIONS

Well ID and Approx GSE (feet msl)	Interval Depth (feet bgs)	Approximate Elevation (feet amsl)	Lithology	Description
WT-MW-10D 222'	0-5	222-217	Fill (probable)	Silty sand; red brown; soft; dry to moist.
	5-483	217-(-261)	Stockton Formation (sandstone/siltstone)	Sandstone with interbedded siltstone starting at 158 feet bgs; sandstone locally micaceous below 148 feet bgs and arkosic below 368 feet bgs; sandstone predominately light gray to gray in color and locally varying shades of red, red-brown, or white; siltstone color predominately dark reddish brown; siliceous cemented; strength very weak to moderate to 40 feet bgs and moderate below 40 feet bgs to the Dolomite contact; weathering variable to 125 feet bgs and fresh below 125 feet bgs to the Dolomite contact; upper contacts predominately sharp; secondary porosity moderate to high to 40 feet bgs and moderate below 40 feet bgs to the Dolomite contact. Competent bedrock encountered at 23 feet bgs. Water bearing fractures observed at approximately 163 and 234 feet bgs; fracture yield low at 163 feet bgs (1 gpm) and 188 to 197 feet bgs (2 to 3 feet bgs).
	483-486	(-261)-(-264)	Ledger Formation (dolomite)	Dark gray in color; strength strong; weathering fresh; upper contact with Stockton Formation sharp; porosity low.
WT-MW-11 218'	0-10	218-208	Fill (probable)	Silty sand; sand fine to coarse-grained; soft drilling; yellowish brown.
	10-490	208-(-272)	Stockton Formation (sandstone/siltstone)	Sandstone with interbedded siltstone; sandstone locally arkosic between 270 and 382 feet bgs; locally micaceous between 275 and 323 feet bgs; sandstone color primarily light to dark gray, locally dark reddish brown; siltstone color predominately dark reddish brown; predominately siliceous cemented, locally calcite cemented; slight to highly weathered down to 158 feet bgs, surface weathering predominately fresh below 158 feet bgs; strength predominately strong; upper contacts sharp to gradational; sandstone secondary porosity low to moderate and high below 418 feet bgs. Competent bedrock encountered at 26 feet bgs. First groundwater observed at approximately 55 feet bgs and large volumes of water (>200 gpm) observed below 410 feet bgs. Clay filled void encountered from 498 to 508 feet bgs.
	490-508	(-272)-(-290)	Ledger Formation (dolomite)	Gray; calcite cemented, surface weathering fresh; strength strong; upper contact sharp with Stockton Formation; secondary porosity high
WT-MW-12 165'	0-7	165-158	Fill (probable)	Silty sand with some clay (fill), brown

TABLE 2-3
LOCKHEED MARTIN CORPORATION
SUMMARIZED BOREHOLE LITHOLOGY DESCRIPTIONS

Well ID and Approx GSE (feet msl)	Interval Depth (feet bgs)	Approximate Elevation (feet amsl)	Lithology	Description
WT-MW-15S 220'	0-19	220-201	Fill (probable)	Sandy silt with coarse gravel (fill), weathered sandstone fragments, little sitly clay; brown
	19-220	201-0	Stockton Formation (sandstone/siltstone)	Interbedded sandstone and siltstone; Fine to coarse sandstone with some carbonate, arkosic; red and gray. Siltstone with some chert and fine quartz fragments; red.
WT-MW-15D 220'	201-512	19-(-292)	Stockton Formation (sandstone/siltstone)	Interbedded sandstone and siltstone; very fine to very course, arkosic, sandstone; mottled at times with numerous quartz fragments; red to brown in color; fine to coarse siltstone; red and brown in color; fracturing occurs intermittently through the formation; some fractures filled with clay; intermittent rubble as well throughout formation.
	512-527	(-292)-(-307)	Ledger Formation (dolomite)	Weathered carbonate; dolostone; voids after 514 feet bgs.
WT-MW-16SR 218'	0-9	218-209	Fill (probable)	Silty clay topsoil; sandy silt with some gravel (fill)
	9-339	209-(-121)	Stockton Formation (sandstone/siltstone)	Interbedded sandstone and siltstone; Fine to coarse sandstone with some clay and siltstone; arkosic; quarts fragments; dark brown and gray. Siltstone with some mudstone and quartz fragments and traces of very finely grained sandstone; Brown, red, and tan.
WT-MW-16D 218'	0-8	218-210	Fill (probable)	Silty clay topsoil; sandy silt with some fine gravel (fill)
	8-339	210-(-121)	Stockton Formation (sandstone/siltstone)	Air rotary drilling to 220' followed by coring to 359'; Interbedded sandstone and siltstone; Sandstone; some silt, traces of clay, and quartz fragments; fine to coarse grained; arkosic (243-249 feet bgs); fractures and broken zones intermittently; gray, brown, tan and green in color. Siltstone; traces of fine to medium grained sandstone and quartz fragments; dark brown, red, and gray color; mottled at times. Section of claystone and shale with quartz between two formations.
	330-359	(-112)-(141)	Ledger Formation (dolomite)	Dolomite; gray. High angular fractures throughout formation. Increase in resistivity as recorded on geophysical logs indicates top of limestone at 330 feet bgs.

TABLE 2-3
LOCKHEED MARTIN CORPORATION
SUMMARIZED BOREHOLE LITHOLOGY DESCRIPTIONS

Well ID and Approx GSE (feet msl)	Interval Depth (feet bgs)	Approximate Elevation (feet amsl)	Lithology	Description
WT-MW-17 231'	0-5	231-226	Fill (probable)	Sandy silt with trace of clay; Brown red
	5-499	226-(-268)	Stockton Formation (sandstone/siltstone)	Interbedded sandstone and siltstone; Sandstone intervals fine to coarse; traces of siltstone, clay, and quartz fragments interspersed, small amounts of calcite and mica flakes present; Red, gray, brown, green, and tan color present throughout. Siltstone intervals include traces of fine to medium sandstone and mica flakes, quartz and calcite fragments; brown-red to dark red in color.
	499-522	(-268)-(-291)	Ledger Formation (dolomite)	Dolomite and limestone; tan, light to dark gray, and yellow coloring observed.
WT-MW-18 212'	0-36	212-176	Fill (probable)	Silty sand with some medium grade gravel (fill); wood fragments; clayey silt
	36-190	176-22	Stockton Formation (sandstone/siltstone)	Fine to medium grained sandstone interbedded with siltstone layers; light brown, gray, and white.
	190-300	22-(-88)	Ledger Formation (dolomite)	Dolostone; gray to dark gray in color; traces of quartz fragments; course fragments of dark gray siltstone.
WT-VI-201 219'	0-4	219-215	Fill (probable)	Silty sand and clay; brown.
	4-70	215-149	Stockton Formation (sandstone/siltstone)	Sandstone; gray to brown, interbedded with siltstone; dark red. Fractures present at 38 feet bgs.
WT-VI-202 230'	0-4	230-226	Fill (probable)	Silty clay some weathered sandstone; brown.
	4-90	226-140	Stockton Formation (sandstone/siltstone)	Sandstone; light gray; interbedded with siltstone, red-brown in color.
ESA-MW-104 218'	0-11	218-207	Fill (probable)	Sandy silt; purplish brown, slightly moist to dry.
	11-200	207-18	Stockton Formation (sandstone/siltstone)	Sandstone and siltstone with some shale layers; Sandstone ranges from fine to coarse-grained with trace to some siltstone and shale, purplish brown to tan to gray/green; Coarse quartzitic sandstone or quartzite at base (198-200'). Silstone with some sand and trace gravel, light gray to tan; Shale is red and gray to black, calcareous. First water observed at 90 feet bgs.

GSE: ground surface elevation

bgs: below ground surface

amsl: above mean sea level

TABLE 2-4
LOCKHEED MARTIN CORPORATION
DEPTH TO LEDGER FORMATION DOLOMITE

Boring Location	Depth to Dolomite (feet bgs)	Top of Dolomite Elevation (feet msl)	Presumed Contact Type*
WT-MW-1	490	-271	Uncertain
WT-MW-5D	290	-72	Fault
WT-MW-8	26	130	Fault
WT-MW-8R	60	107	Fault
WT-MW-9D	506	-287	Fault
WT-MW-10D	483	-261	Fault
WT-MW-11	490	-272	Fault
WT-MW-15D	511	-291	Uncertain
WT-MW-16D	330	-112	Fault
WT-MW-17	499	-268	Bedding
WT-MW-18	190	22	Fault
ESA-MW-105D	337	-112	Bedding

bgs: below ground surface
msl: mean sea level
*: Contact type based on assumption of fault plane average dip of 54 degrees.
Type designation of uncertain due to proximity to intersection of fault plane with beddin plane.

TABLE 2-5
LOCKHEED MARTIN CORPORATION
APPROXIMATE LIMITS OF CONFINING ZONE

Monitoring Well(s)	Approximate Top of Confining Zone Elevation (feet msl)	Approximate Bottom of Confining Zone Elevation (feet msl)
WT-MW-1	28	-96
WT-MW-2	45	-45
WT-MW-3	Not Encountered	Not Encountered
WT-MW-4	Not Encountered	Not Encountered
WT-MW-5 Series	62	-3
WT-MW-6	Not Encountered	Not Encountered
WT-MW-7	33	-7
WT-MW-8R	Not Encountered	Not Encountered
WT-MW-9 Series	-97	-197
WT-MW-10 Series	40	-30
WT-MW-11	28	-57
WT-MW-15 Series	Not available*	Above 298
WT-MW-16 Series	28	-12
WT-MW-17	-20	-120
WT-MW-18	36	0

msl: mean seal level
*: Not available because water level measurements versus depth required to make determination were not collected.

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-1	218.62	144	Zone 1		10/20/09	42.80	175.82
219'			SWL-93.5	SWL-125.5	01/22/10	43.25	175.37
					03/31/10	36.42	182.20
					07/12/10	58.12	160.50
	218.60	486			11/12/10	43.76	174.84
					02/10/11	38.22	180.38
	218.54		Zone 1		05/02/11	41.74	176.80
			47-95	172-124	07/25/11	49.62	168.92
					12/27/11	39.56	178.98
					02/06/12	40.6	177.94
					04/16/12	47.75	170.79
					07/12/12	47.08	171.46
					10/24/12	47.11	171.43
					01/07/13	39.29	179.25
					04/29/13	42.35	176.19
					07/01/13	38.55	179.99
	218.62	144	Zone 2		10/15/09	49.48	169.14
			93.5-108.5	125.5-110.5	01/21/10	45.22	173.40
					03/31/10	39.36	179.26
					07/12/10	65.87	152.75
	218.60	486			11/12/10	48.54	170.06
					02/10/11	42.00	176.60
	218.54		Zone 2		05/02/11	42.99	175.55
			100-112	119-107	07/25/11	53.40	165.14
					12/27/11	42.39	176.15
					02/06/12	44.21	174.33
					04/16/12	50.99	167.55
					07/12/12	50.35	168.19
					10/24/12	50.03	168.51
					01/07/13	42.69	175.85
					04/29/13	45.46	173.08
					07/01/13	41.03	177.51
	218.62	144	Zone 3		10/16/09	50.45	168.17
			108.5-144	110.5-75	01/19/10	44.60	174.02
					03/31/10	36.86	181.76
					07/16/10	82.90	135.72
	218.60	486			10/27/10	63.20	155.40
					02/22/11	46.50	172.10
	218.54		Zone 3		05/02/11	43.47	175.07
			117-145	102-74	07/25/11	53.83	164.71
					12/27/11	42.59	175.95
					02/06/12	44.64	173.90
					04/16/12	51.38	167.16
					07/12/12	50.73	167.81
					10/24/12	50.37	168.17
					01/07/13	43.01	175.53
					04/29/13	45.80	172.74
					07/01/13	41.39	177.15

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-1	218.54	486	Zone 4		05/02/11	49.34	169.20
219'			150-180	69-39	07/25/11	54.51	164.03
(continued)					12/27/11	44.15	174.39
					02/06/12	46.87	171.67
					04/16/12	51.90	166.64
					07/12/12	52.82	165.72
					10/24/12	53.41	165.13
					01/07/13	50.08	168.46
					04/29/13	51.51	167.03
					07/01/13	49.52	169.02
	218.54	486	Zone 5		05/02/11	120.53	98.01
			212-230	7-(-11)	07/25/11	129.23	89.31
					12/27/11	117.41	101.13
					02/06/12	104.33	114.21
					04/16/12	107.88	110.66
					07/12/12	114.67	103.87
					10/24/12	113.71	104.83
					01/07/13	112.29	106.25
					04/29/13	103.51	115.03
					07/01/13	111.41	107.13
	218.54	486	Zone 6		05/02/11	127.49	91.05
			355-365	(-136)-(-146)	07/25/11	134.29	84.25
					12/27/11	127.07	91.47
					02/06/12	128.59	89.95
					04/16/12	132.97	85.57
					07/12/12	133.43	85.11
					10/24/12	134.45	84.09
					01/07/13	131.52	87.02
					04/29/13	132.14	86.40
					07/01/13	128.22	90.32
	218.54	486	Zone 7		05/02/11	127.75	90.79
			395-415	(-176)-(-196)	07/25/11	134.60	83.94
					12/27/11	127.36	91.18
					02/06/12	128.88	89.66
					04/16/12	133.24	85.30
					07/12/12	133.72	84.82
					10/24/12	134.72	83.82
					01/07/13	131.81	86.73
					04/29/13	132.45	86.09
					07/01/13	128.46	90.08

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-1	218.54	486	Zone 8		05/02/11	127.96	90.58
219'			444-464	(-225)-(-245)	07/25/11	134.79	83.75
(continued)					12/27/11	127.57	90.97
					02/06/12	129.09	89.45
					04/16/12	133.45	85.09
					07/12/12	133.91	84.63
					10/24/12	134.93	83.61
					01/07/13	132.02	86.52
					04/29/13	132.62	85.92
					07/01/13	128.70	89.84
WT-MW-2	219.55	213	Zone 1		10/22/09	42.45	177.10
220'			SWL-81.5	SWL-81.5	01/25/10	42.50	177.05
					03/31/10	34.82	184.73
					07/06/10	70.42	149.13
	219.67	213	Zone 1		11/12/10	44.78	174.72
			SWL-80	SWL-140	02/10/11	39.84	179.66
					05/02/11	39.10	180.57
					07/25/11	50.04	169.63
					12/27/11	40.80	178.87
					02/06/12	41.72	177.95
					04/16/12	49.05	170.62
					07/12/12	48.29	171.38
					10/24/12	47.76	171.91
					01/07/13	38.63	181.04
					04/29/13	43.13	176.54
					07/01/13	46.22	173.45
	219.55	213	Zone 2		10/21/09	47.5	172.05
			81.5-118.5	138.5-101.5	01/28/10	43.40	176.15
					05/03/10	47.70	171.85
					07/29/10	67.85	151.70
	219.67	213	Zone 2		11/12/10	49.09	170.41
			83-117	137-103	02/10/11	43.13	176.37
					05/02/11	44.15	175.52
					12/27/11	43.65	176.02
					07/25/11	54.28	165.39
					02/06/12	45.29	174.38
					04/16/12	51.91	167.76
					07/12/12	51.31	168.36
					10/24/12	50.46	169.21
					01/07/13	43.97	175.70
					04/29/13	46.51	173.16
					07/01/13	42.10	177.57

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-2	219.55	213	Zone 3		10/19/09	49.13	170.42
220'			118.5-171.5	101.5-48.5	01/27/10	44.45	175.10
(continued)					04/27/10	64.29	155.26
					07/28/10	69.3	150.25
	219.67	213	Zone 3		11/12/10	49.59	169.91
			120-154	100-66	02/10/11	43.60	175.90
					05/02/11	44.79	174.88
					07/25/11	54.71	164.96
					12/27/11	43.86	175.81
					02/06/12	45.86	173.81
					04/16/12	52.30	167.37
					07/12/12	51.72	167.95
					10/24/12	50.89	168.78
					01/07/13	44.43	175.24
					04/29/13	46.99	172.68
					07/01/13	42.66	177.01
	219.55	213	Zone 4		10/20/09	48.60	170.95
			171.5-213	48.5-7	01/26/10	46.80	172.75
					04/26/10	50.68	168.87
					07/27/10	69.78	149.77
	219.67	213	Zone 4		11/12/10	52.18	167.32
			157-187	63-33	02/10/11	48.95	170.55
					05/02/11	50.40	169.27
					07/25/11	55.62	164.05
					12/27/11	45.36	174.31
					02/06/12	48.09	171.58
					04/16/12	53.04	166.63
					07/12/12	53.99	165.68
					10/24/12	53.97	165.70
					01/07/13	51.27	168.40
					04/29/13	52.58	167.09
					07/01/13	50.57	169.10
	219.67	213	Zone 5		11/12/10	101.59	117.91
			190-213	30-7	02/10/11	100.32	119.18
					05/02/11	99.00	120.67
					07/25/11	102.00	117.67
					12/27/11	97.90	121.77
					02/06/12	98.64	121.03
					04/16/12	100.60	119.07
					07/12/12	101.02	118.65
					10/24/12	101.23	118.44
					01/07/13	99.75	119.92
					04/29/13	99.17	120.50
					07/01/13	97.55	122.12

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-3	227.83	182	165-180	115-80	10/14/09	56.46	171.37
229'					01/11/10	53.55	174.28
					03/29/10	52.83	175.00
					07/06/10	84.12	143.71
	227.66	182			11/12/10	59.92	167.93
					02/10/11	56.80	171.05
					05/02/11	58.12	169.54
					07/25/11	63.19	164.47
					12/27/11	54.56	173.10
					02/06/12	55.36	172.30
					04/16/12	61.13	166.53
					07/12/12	62.02	165.64
					10/24/12	62.06	165.60
					01/07/13	59.31	168.35
					04/29/13	60.65	167.01
					07/01/13	58.03	169.63
WT-MW-4	228.69	152	115-150	115-80	10/15/09	59.26	169.43
230'					01/11/10	52.15	176.54
					03/29/10	49.13	179.56
					07/06/10	96.00	132.69
	228.21	152			11/12/10	59.32	169.34
					02/10/11	52.22	176.44
					05/02/11	54.02	174.19
					07/25/11	64.73	163.48
					12/27/11	52.95	175.26
					02/06/12	55.15	173.06
					04/16/12	62.63	165.58
					07/12/12	62.13	166.08
					10/24/12	60.75	167.46
					01/07/13	53.53	174.68
					04/29/13	56.69	171.52
					07/01/13	52.04	176.17
WT-MW-5	217.34	262	Zone 1		10/22/09	43.60	173.74
218'			SWL-105	SWL-113	01/18/10	43.17	174.17
					03/31/10	40.00	177.34
					07/06/10	85.27	132.07
	217.35	262			11/12/10	46.60	170.75
					02/10/11	41.64	175.71
	217.29		Zone 1		05/02/11	42.05	175.24
			45-105	175-115	07/25/11	51.14	166.15
					12/27/11	42.64	174.65
					02/06/12	43.75	173.54
					04/16/12	50.09	167.20
					07/12/12	49.84	167.45
					10/24/12	48.76	168.53
					01/07/13	42.74	174.55
					04/29/13	45.20	172.09
					07/01/13	44.81	172.48

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-5	217.34	262	Zone 2		10/23/09	47.61	169.73
218'			105-227	113-(-9)	01/13/09	42.80	174.54
(continued)					03/29/10	41.26	176.08
					07/12/10	65.72	151.62
	217.35	262			11/12/10	48.22	169.13
					02/10/11	42.38	174.97
	217.29		Zone 2		05/02/11	43.14	174.15
			110-150	108-68	07/25/11	52.90	164.39
					12/27/11	42.23	175.06
					02/06/12	44.13	173.16
					04/16/12	50.40	166.89
					07/12/12	49.35	167.94
					10/24/12	48.81	168.48
					01/07/13	42.60	174.69
					04/29/13	45.05	172.24
					07/01/13	43.64	173.65
	217.34	262	Zone 3		10/26/09	106.25	111.09
			227-262	(-9)-(-44)	01/14/10	104.60	112.74
					04/06/10	117.75	99.59
					07/08/10	130.06	87.28
	217.35	262			11/02/10	125.61	91.74
					02/24/11	121.63	95.72
	217.29	262	Zone 3		05/02/11	48.89	168.40
			155-165	63-53	07/25/11	58.00	159.29
					12/27/11	44.92	172.37
					02/06/12	46.81	170.48
					04/16/12	52.64	164.65
					07/12/12	53.15	164.14
					10/24/12	52.97	164.32
					01/07/13	50.18	167.11
					04/29/13	51.72	165.57
					07/01/13	51.77	165.52
	217.29	262	Zone 4		05/02/11	49.08	168.21
			170-225	48-(-7)	07/25/11	54.45	162.84
					12/27/11	44.07	173.22
					02/06/12	46.72	170.57
					04/16/12	51.82	165.47
					07/12/12	52.63	164.66
					10/24/12	52.56	164.73
					01/07/13	49.79	167.50
					04/29/13	51.15	166.14
					07/01/13	51.7	165.59

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-5	217.29	262	Zone 5		05/02/11	125.47	91.82
218'			230-262	(-12)-(-44)	07/25/11	132.25	85.04
(continued)					12/27/11	124.98	92.31
					02/06/12	126.59	90.70
					04/16/12	48.97	168.32
					07/12/12	131.48	85.81
					10/24/12	132.08	85.21
					01/07/13	129.52	87.77
					04/29/13	130.15	87.14
					07/01/13	128.67	88.62
WT-MW-5Dss[1]	217.81	318	266-286	(-48)-(-50)	11/12/10	133.65	84.16
218'	217.66	318	266-286	(-48)-(-50)	02/10/11	129.76	87.90
					05/02/11	126.12	91.54
					07/25/11	132.94	84.72
					12/27/11	126.55	91.11
					02/06/12	127.74	89.92
					04/16/12	132.21	85.45
					04/16/12	132.66	85.00
					10/24/12	133.21	84.45
					01/07/13	130.96	86.70
					04/29/13	131.45	86.21
					07/01/13	127.47	90.19
WT-MW-5Dls[2]	217.81	318	303-318	(-85)-(-100)	11/12/11	131.39	86.42
218'	217.68	318	303-318	(-85)-(-100)	02/10/11	129.50	88.18
					05/02/11	126.18	91.50
					07/25/11	132.83	84.85
					12/27/11	126.15	91.53
					02/06/12	127.61	90.07
					04/16/12	132.02	85.66
					04/16/12	132.52	85.16
					10/24/12	133.57	84.11
					01/07/13	130.94	86.74
					04/29/13	131.24	86.44
					07/01/13	127.44	90.24
WT-MW-6	243.44	272	NA	NA	10/13/09	91.87	151.57
244'					01/11/10	84.45	158.99
					03/29/10	82.17	161.27
					07/06/10	96.66	146.78
					11/12/10	88.85	154.59
					02/10/11	79.82	163.62
					05/02/11	84.26	159.18
					07/25/11	96.04	147.40
					12/27/11	83.71	159.73
					02/06/12	86.85	156.59
					04/16/12	94.45	148.99

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-6 244' (continued)	243.44	272	NA	NA	04/16/12	95.02	148.42
					10/24/12	95.31	148.13
					01/07/13	88.18	155.26
					04/29/13	89.02	154.42
					07/01/13	85.96	157.48
WT-MW-7 219'	218.69	500	Zone 1 69-92	150-127	11/12/10	45.87	172.82
					02/10/11	40.93	177.76
					05/02/11	41.37	177.32
					07/25/11	50.64	168.05
					12/27/11	41.36	177.33
					02/06/12	42.01	176.68
					04/16/12	48.93	169.76
					04/16/12	50.68	168.01
					07/12/12	48.12	170.57
					10/24/12	46.97	171.72
					01/07/13	40.46	178.23
					04/29/13	43.30	175.39
					07/01/13	39.45	179.24
			Zone 2 97-124	122-95	11/12/10	48.45	170.24
					02/10/11	42.53	176.16
					05/02/11	43.66	175.03
					07/25/11	53.48	165.21
					12/27/11	42.45	176.24
					02/06/12	44.01	174.68
					04/16/12	50.68	168.01
					07/12/12	49.95	168.74
					10/24/12	48.75	169.94
					01/07/13	42.82	175.87
					04/29/13	45.36	173.33
					07/01/13	42.09	176.60
			Zone 3 129-149	90-70	11/12/10	49.23	169.46
					02/10/11	44.13	174.56
					05/02/11	45.36	173.33
					07/25/11	53.62	165.07
					12/27/11	43.07	175.62
					02/06/12	45.70	172.99
					04/16/12	51.28	167.41
					07/12/12	50.66	168.03
					10/24/12	49.69	169.00
					01/07/13	45.00	173.69
					04/29/13	46.96	171.73
					07/01/13	43.62	175.07

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-7 219' (continued)			Zone 4 179-189	40-30	11/12/10	53.54	165.15
					02/10/11	67.72	150.97
					05/02/11	51.62	167.07
					07/25/11	61.77	156.92
					12/27/11	54.03	164.66
					02/06/12	48.57	170.12
					04/16/12	52.44	166.25
					07/12/12	57.24	161.45
					07/12/12	55.35	163.34
					01/07/13	53.39	165.30
					04/29/13	53.97	164.72
					07/01/13	55.56	163.13
			Zone 5 219-239	0-(-20)	11/12/10	132.36	86.33
					02/10/11	130.40	88.29
					05/02/11	127.15	91.54
					07/25/11	133.93	84.76
					12/27/11	126.24	92.45
					02/06/12	127.74	90.95
					04/16/12	132.26	86.43
					07/12/12	132.70	85.99
					10/24/12	133.09	85.60
					01/07/13	130.83	87.86
					04/29/13	131.43	87.26
					07/01/13	127.48	91.21
			Zone 6 280-307	(-61)-(-88)	11/12/10	132.59	86.10
					02/10/11	130.88	87.81
					05/02/11	127.38	91.31
					07/25/11	134.18	84.51
					12/27/11	126.54	92.15
					02/06/12	127.88	90.81
					04/16/12	132.44	86.25
					07/12/12	132.91	85.78
					10/24/12	133.25	85.44
					01/07/13	131.01	87.68
					04/29/13	131.64	87.05
					07/01/13	127.65	91.04
			Zone 7 322-352	(-103)-(-133)	11/12/10	132.68	86.01
					02/10/11	130.92	87.77
					05/02/11	127.46	91.23
					07/25/11	134.29	84.40
					12/27/11	126.63	92.06
					02/06/12	127.96	90.73
					04/16/12	132.51	86.18
					07/12/12	132.97	85.72
					10/24/12	133.36	85.33
					01/07/13	131.10	87.59
					04/29/13	131.68	87.01
					07/01/13	127.78	90.91

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-7			Zone 8		11/12/10	132.79	85.90
219'			379-409	(-160)-(-190)	02/10/11	131.01	87.68
(continued)					05/02/11	127.55	91.14
					07/25/11	134.36	84.33
					12/27/11	126.67	92.02
					02/06/12	128.08	90.61
					04/16/12	132.60	86.09
					07/12/12	133.04	85.65
					10/24/12	133.38	85.31
					01/07/13	131.17	87.52
					04/29/13	131.79	86.90
					07/01/13	127.87	90.82
			Zone 9		11/12/10	133.59	85.10
			454-500	(-235)-(-281)	02/10/11	131.16	87.53
					05/02/11	127.68	91.01
					07/25/11	134.51	84.18
					12/27/11	126.84	91.85
					02/06/12	128.23	90.46
					04/16/12	132.79	85.90
					07/12/12	126.31	92.38
					10/24/12	133.58	85.11
					01/07/13	131.32	87.37
					04/29/13	131.94	86.75
					07/01/13	127.97	90.72
WT-MW-8R	165.32	117*	97-117*	70-50	11/12/10	78.34	86.98
167'					02/10/11	76.72	88.60
					05/02/11	73.49	91.83
					07/25/11	80.33	84.99
					12/27/11	73.69	91.63
					02/06/12	75.12	90.20
					04/16/12	79.54	85.78
					07/12/12	80.03	85.29
					10/24/12	80.55	84.77
					01/07/13	78.33	86.99
					04/29/13	78.81	86.51
					07/01/13	72.97	92.35
WT-MW-9s	217.21	300	125-165	94-54	11/12/10	18.03	199.18
219'					02/10/11	44.76	172.45
					05/02/11	46.71	170.50
					07/25/11	58.09	159.12
					12/27/11	46.68	170.53
					02/06/12	49.14	168.07
					04/16/12	56.96	160.25
					07/12/12	56.94	160.27
					10/24/12	55.10	162.11
					01/07/13	48.32	168.89
					04/29/13	51.75	165.46
					07/01/13	47.68	169.53

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-9d	217.20	300	250-300	(-31)-(-81)	11/12/10	51.80	165.40
219'					02/10/11	14.35	202.85
					05/02/11	16.15	201.05
					07/25/11	23.14	194.06
					12/27/11	15.04	202.16
					02/06/12	17.35	199.85
					04/16/12	19.85	197.35
					07/12/12	21.88	195.32
					10/24/12	20.78	196.42
					01/07/13	16.31	200.89
					04/29/13	18.43	198.77
					07/01/13	16.55	200.65
WT-MW-9Dss	218.32	535	477-497	(-258)-(-278)	11/12/10	131.83	86.49
219'					02/10/11	130.73	87.59
					05/02/11	123.40	94.92
					07/25/11	133.59	84.73
					12/27/11	129.89	88.43
					02/06/12	128.39	89.93
					04/16/12	132.80	85.52
					07/12/12	133.19	85.13
					10/24/12	133.72	84.60
					01/07/13	131.66	86.66
					04/29/13	131.99	86.33
					07/01/13	128.00	90.32
WT-MW-9Dls	218.32	535	515-535	(-296)-(-316)	11/12/10	132.03	86.29
2119'					02/10/11	130.46	87.86
					05/02/11	126.70	91.62
					07/25/11	133.44	84.88
					12/27/11	126.90	91.42
					02/06/12	128.22	90.10
					04/16/12	132.66	85.66
					07/12/12	133.11	85.21
					10/24/12	133.66	84.66
					01/07/13	131.56	86.76
					04/29/13	131.91	86.41
					07/01/13	127.97	90.35
WT-MW-10Ss[3]	221.44	200	52-82	170-140	11/12/10	48.76	172.68
222'	220.69	200	52-82	170-140	02/10/11	42.66	178.03
					05/02/11	43.77	176.92
					07/25/11	52.77	167.92
					12/27/11	44.02	176.67
					02/06/12	45.21	175.48
					04/16/12	51.14	169.55
					07/12/12	50.68	170.01
					10/24/12	50.05	170.64
					01/07/13	44.21	176.48
					04/29/13	46.71	173.98
					07/01/13	43.37	177.32

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-10Sd[4]	221.43	200	90-120	132-102	11/12/10	48.69	172.74
222'	220.65	200	90-120	132-102	02/10/11	42.12	178.53
					05/02/11	43.93	176.72
					07/25/11	52.96	167.69
					12/27/11	43.80	176.85
					02/06/12	45.20	175.45
					04/16/12	51.46	169.19
					07/12/12	50.91	169.74
					10/24/12	50.25	170.40
					01/07/13	43.78	176.87
					04/29/13	46.79	173.86
					07/01/13	43.27	177.38
WT-MW-10Ds	220.55	486	145-165	77-57	11/12/10	53.46	167.09
222'					02/10/11	50.29	170.26
					05/02/11	51.60	168.95
					07/25/11	56.84	163.71
					12/27/11	47.48	173.07
					02/06/12	50.06	170.49
					04/16/12	55.00	165.55
					07/12/12	55.76	164.79
					10/24/12	55.75	164.80
					01/07/13	53.71	166.84
					04/29/13	54.48	166.07
					07/01/13	52.25	168.30
WT-MW-10Dd	220.58	486	383-403	(-161)-(-181)	11/12/10	134.71	85.87
222'					02/10/11	132.85	87.73
					05/02/11	129.24	91.34
					07/25/11	136.26	84.32
					12/27/11	129.38	91.20
					02/06/12	130.85	89.73
					04/16/12	135.45	85.13
					07/12/12	135.91	84.67
					10/24/12	136.56	84.02
					01/07/13	134.11	86.47
					04/29/13	134.69	85.89
					07/01/13	130.58	90.00
WT-MW-11	217.97	508*	Zone 1		11/12/10	45.51	172.46
218'			87-116	131-102	02/10/11	40.53	177.44
					05/02/11	40.88	177.09
					07/25/11	50.63	167.34
					12/27/11	41.47	176.50
					02/06/12	42.28	175.69
					04/16/12	49.25	168.72
					07/12/12	48.55	169.42
					10/24/12	47.96	170.01
					01/07/13	41.29	176.68
					04/29/13	43.99	173.98
					07/01/13	40.40	177.57

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-11 218' (continued)			Zone 2 119-146	99-72	11/12/10	47.99	169.98
					02/10/11	41.79	176.18
					05/02/11	42.92	175.05
					07/25/11	53.11	164.86
					12/27/11	42.11	175.86
					02/06/12	43.91	174.06
					04/16/12	50.83	167.14
					07/12/12	50.09	167.88
					07/12/12	65.88	152.09
					01/07/13	42.52	175.45
					04/29/13	45.2	172.77
					07/01/13	40.82	177.15
			Zone 3 169-176	49-42	11/12/10	53.16	164.81
					02/10/11	59.80	158.17
					05/02/11	55.28	162.69
					07/25/11	60.38	157.59
					12/27/11	52.40	165.57
					02/06/12	56.02	161.95
					04/16/12	60.26	157.71
					07/12/12	62.13	155.84
					10/24/12	62.96	155.01
					01/07/13	61.51	156.46
					04/29/13	62.68	155.29
					07/01/13	61.32	156.65
			Zone 4 199-231	19-(-13)	11/12/10	92.65	125.32
					02/10/11	90.97	127.00
					05/02/11	89.61	128.36
					07/25/11	92.42	125.55
					12/27/11	87.81	130.16
					02/06/12	88.31	129.66
					04/16/12	90.76	127.21
					07/12/12	91.06	126.91
					10/24/12	91.27	126.70
					01/07/13	89.60	128.37
					04/29/13	89.93	128.04
					07/01/13	87.97	130.00
			Zone 5 309-341	(-91)-(-123)	11/12/10	110.31	107.66
					02/10/11	107.59	110.38
					05/02/11	122.58	95.39
					07/25/11	127.80	90.17
					12/27/11	112.25	105.72
					02/06/12	123.20	94.77
					04/16/12	126.76	91.21
					07/12/12	127.84	90.13
					10/24/12	128.56	89.41
					01/07/13	126.76	91.21
					04/29/13	125.67	92.30
					07/01/13	123.69	94.28

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-12 165'	163.79	7	3-7	162-158	05/02/11	1.48	162.31
					07/25/11	3.85	159.94
					12/27/11	2.21	161.58
					02/06/12	3.26	160.53
					04/16/12	4.28	159.51
					07/12/12	4.20	159.59
					10/24/12	3.7	160.09
					01/07/13	2.88	160.91
					04/29/13	3.45	160.34
					07/01/13	2.81	160.98
WT-MW-15D 220'	219.05	527	517-527	(-297)-(-307)	04/16/12	137.42	81.63
					07/12/12	137.89	81.16
					10/24/12	136.41	82.64
					01/07/13	132.40	86.65
					04/29/13	132.53	86.52
					07/01/13	128.52	90.53
WT-MW-16SR 218'	217.58	221	Zone 1 SWL-65	SWL-153	07/12/12	45.57	172.01
					10/24/12	45.20	172.38
					01/07/13	38.92	178.66
					04/29/13	41.22	176.36
					07/01/13	38.97	178.61
			Zone 2 70-130	148-88	07/12/12	49.48	168.10
					10/24/12	48.99	168.59
					01/07/13	42.83	174.75
					04/29/13	44.58	173.00
					07/01/13	41.68	175.90
			Zone 3 135-180	83-38	07/12/12	51.09	166.49
					10/24/12	50.56	167.02
					01/07/13	45.51	172.07
					04/29/13	46.96	170.62
					07/01/13	44.19	173.39
WT-MW-16D 218'	217.39		Zone 1 225-260	(-7)-(-42)	01/07/13	130.70	86.69
					04/29/13	130.84	86.55
					07/01/13	127.24	90.15
			Zone 2 265-310	(-47)-(-92)	01/07/13	131.09	86.30
					04/29/13	131.10	86.29
					07/01/13	127.67	89.72
			Zone 3 315-329	(-97)-(-111)	01/07/13	131.11	86.28
					04/29/13	131.15	86.24
					07/01/13	127.69	89.70

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-MW-17 231'	230.11		Zone 1 245-280	(-14)-(-49)	07/12/12	77.39	152.72
					10/24/12	77.01	153.10
					01/07/13	75.29	154.82
					04/29/13	34.28	195.83
					07/01/13	74.30	155.81
			Zone 2 285-340	(-54)-(-109)	07/12/12	106.71	123.40
					10/24/12	82.77	147.34
					01/07/13	81.31	148.80
					04/29/13	79.65	150.46
					07/01/13	80.16	149.95
			Zone 3 435-500	(-204)-(-269)	07/12/12	127.51	102.60
					10/24/12	129.04	101.07
					01/07/13	126.98	103.13
					04/29/13	127.61	102.50
					07/01/13	122.46	107.65
			Zone 4 505-522	(-274)-(-291)	07/12/12	127.61	102.50
					10/24/12	129.16	100.95
					01/07/13	127.08	103.03
					04/29/13	127.70	102.41
					07/01/13	122.76	107.35
WT-MW-18 212'	210.88		Zone 1 95-115	117-97	01/07/13	38.88	172.00
					04/29/13	38.94	171.94
					07/01/13	36.92	173.96
			Zone 2 120-153	92-59	01/07/13	41.64	169.24
					04/29/13	41.48	169.40
					07/01/13	39.79	171.09
			Zone 3 158-180	54-32	01/07/13	43.96	166.92
					04/29/13	43.66	167.22
					07/01/13	42.09	168.79
			Zone 4 185-210	27-32	01/07/13	94.18	116.70
					04/29/13	93.17	117.71
					07/01/13	91.41	119.47
			Zone 5 215-255	(-3)-(-43)	01/07/13	120.41	90.47
					04/29/13	118.43	92.45
					07/01/13	115.06	95.82
			Zone 6 260-300	(-48)-(-88)	01/07/13	122.34	88.54
					04/29/13	121.34	89.54
					07/01/13	117.31	93.57

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
ESA-MW-101s 245'	243.57	200	50-80	195-165	02/10/11	45.53	198.04
					05/02/11	50.27	193.30
					07/25/11	68.11	175.46
					12/27/11	49.95	193.62
					02/06/12	54.40	189.17
					04/16/12	64.08	179.49
					07/12/12	63.96	179.61
					10/24/12	64.09	179.48
					01/07/13	55.59	187.98
					04/29/13	60.85	182.72
					07/01/13	50.60	192.97
ESA-MW-101d 245'	243.56	200	147-172	98-73	02/10/11	63.20	180.36
					05/02/11	61.14	182.42
					07/25/11	69.43	174.13
					12/27/11	61.72	181.84
					02/06/12	61.96	181.60
					04/16/12	68.09	175.47
					07/12/12	67.17	176.39
					10/24/12	66.21	177.35
					01/07/13	62.60	180.96
					04/29/13	63.58	179.98
					07/01/13	60.85	182.71
ESA-P-101 245'	243.57	200	190-200	55-45	12/27/11	58.42	185.15
					02/06/12	60.76	182.81
					04/16/12	64.87	178.70
					07/12/12	64.68	178.89
					10/24/12	65.2	178.37
					01/07/13	62.80	180.77
					04/29/13	86.20	157.37
					07/01/13	61.63	181.94
ESA-MW-102s 216'	214.58	200	21-41	195-175	02/10/11	17.28	197.30
					05/02/11	19.07	195.51
					07/25/11	23.53	220.04
					12/27/11	17.93	196.65
					02/06/12	18.87	195.71
					04/16/12	22.25	192.33
					07/12/12	22.52	192.06
					10/24/12	20.48	194.10
					01/07/13	18.01	196.57
					04/29/13	19.14	195.44
					07/01/13	16.77	197.81

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
ESA-MW-102d 216'	214.60	200	121-141	95-75	02/10/11	47.47	167.13
					05/02/11	46.86	167.74
					07/25/11	51.11	163.49
					12/27/11	46.48	168.12
					02/06/12	46.80	167.80
					04/16/12	49.47	165.13
					07/12/12	49.60	165.00
					10/24/12	49.3	165.30
					01/07/13	47.32	167.28
					04/29/13	47.80	166.80
					07/01/13	46.52	168.08
ESA-P-102 216'	214.60	200	190-200	26-16	12/27/11	53.44	161.16
					02/06/12	52.54	162.06
					04/16/12	55.09	159.51
					07/12/12	55.48	159.12
					10/24/12	55.6	159.00
					01/07/13	54.31	160.29
					04/29/13	54.09	160.51
					07/01/13	52.94	161.66
ESA-MW-103s 206'	205.61	200	50-80	156-126	02/10/11	38.22	167.39
					05/02/11	37.73	167.88
					07/25/11	42.17	163.44
					12/27/11	37.50	168.11
					02/06/12	37.79	167.82
					04/16/12	40.51	165.10
					07/12/12	40.91	164.70
					10/24/12	40.65	164.96
					01/07/13	38.56	167.05
					04/29/13	38.91	166.70
					07/01/13	37.97	167.64
ESA-MW-103d 206'	205.58	200	125-145	81-61	02/10/11	54.98	150.60
					05/02/11	53.95	151.63
					07/25/11	58.60	146.98
					12/27/11	53.91	151.67
					02/06/12	54.06	151.52
					04/16/12	57.04	148.54
					07/12/12	57.36	148.22
					10/24/12	58.21	147.37
					01/07/13	56.03	149.55
					04/29/13	56.38	149.20
					07/01/13	54.88	150.70

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
ESA-P-103 206'	205.59	200	190-200	16-6	12/27/11	86.21	119.38
					02/06/12	85.35	120.24
					04/16/12	87.67	117.92
					07/12/12	88.13	117.46
					10/24/12	90.1	115.49
					01/07/13	88.70	116.89
					04/29/13	89.05	116.54
					07/01/13	87.95	117.64
ESA-MW-104s 218'	217.23	35	20-35	198-183	12/27/11	16.99	200.24
					02/06/12	17.98	199.25
					04/16/12	19.28	197.95
					07/12/12	19.78	197.45
					10/24/12	18.77	198.46
					01/07/13	17.21	200.02
					04/29/13	18.50	198.73
					07/01/13	17.85	199.38
ESA-MW-104m 218'	217.13	100	80-100	38-118	12/27/11	54.74	162.39
					02/06/12	55.82	161.31
					04/16/12	59.30	157.83
					07/12/12	59.27	157.86
					10/24/12	58.74	158.39
					01/07/13	55.65	161.48
					04/29/13	56.95	160.18
					07/01/13	55.40	161.73
ESA-MW-104d 218'	217.20	140	115-140	103-78	12/27/11	47.60	169.60
					02/06/12	50.12	167.08
					04/16/12	57.99	159.21
					07/12/12	57.91	159.29
					10/24/12	56.15	161.05
					01/07/13	49.55	167.65
					04/29/13	53.23	163.97
					07/01/13	48.90	168.30
ESA-MW-105Ss 227'	225.74	95	70-95	157-132	12/27/11	39.31	186.43
					02/06/12	39.62	186.12
					04/16/12	43.00	182.74
					07/12/12	43.29	182.45
					10/24/12	42.71	183.03
					01/07/13	39.66	186.08
					04/29/13	40.00	185.74
					07/01/13	38.85	186.89
ESA-MW-105Sd 227'	225.72	130	110-130	117-97	12/27/11	49.72	176.00
					02/06/12	49.98	175.74
					04/16/12	53.29	172.43
					07/12/12	53.65	172.07
					10/24/12	54.45	171.27
					01/07/13	50.87	174.85
					04/29/13	50.90	174.82
					07/01/13	50.05	175.67

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
ESA-P-105S 227'	225.74	250	230-250	(-3)-(-23)	12/27/11	74.90	150.84
					02/06/12	74.22	151.52
					04/16/12	53.46	172.28
					07/12/12	53.56	172.18
					10/24/12	53.75	171.99
					01/07/13	52.79	172.95
					04/29/13	51.65	174.09
					07/01/13	54.36	171.38
ESA-MW-105Dss 227'	225.36	330	315-330	(-88)-(-103)	12/27/11	117.79	107.57
					02/06/12	112.15	113.21
					04/16/12	113.93	111.43
					07/12/12	114.28	111.08
					10/24/12	116.56	108.80
					01/07/13	121.15	104.21
					04/29/13	117.30	108.06
					07/01/13	114.00	111.36
ESA-MW-105Dls 227'	225.36	364	354-364	(-127)-(-137)	12/27/11	122.28	103.08
					02/06/12	115.82	109.54
					04/16/12	117.18	108.18
					07/12/12	118.13	107.23
					10/24/12	117.9	107.46
					01/07/13	117.75	107.61
					04/29/13	121.30	104.06
					07/01/13	113.85	111.51
WT-VI-201 219'	218.26	70	NA	NA	02/10/11	40.81	177.45
					05/02/11	41.91	176.35
					07/25/11	50.77	167.49
					12/27/11	42.58	175.68
					02/06/12	43.55	174.71
					04/16/12	49.70	168.56
					07/12/12	49.17	169.09
					10/24/12	48.6	169.66
					01/07/13	42.65	175.61
					04/29/13	47.30	170.96
					07/01/13	40.91	177.35

TABLE 2-6
LOCKHEED MARTIN CORPORATION
HISTORIC GROUNDWATER DEPTHS AND ELEVATIONS

Well ID and Approx. GSE (feet msl)	Top-of-Casing Elevation (feet msl)	Total Well Depth (feet)	Zone Depth (bgs)	Zone Elevation (feet msl)	Monitoring Date	Depth to Water (feet)	Groundwater Elevation (feet amsl)
WT-VI-202	229.53	90	NA	NA	02/10/11	44.15	185.38
230'					05/02/11	43.34	186.19
					07/25/11	54.61	174.92
					12/27/11	44.80	184.73
					02/06/12	45.83	183.70
					04/16/12	52.65	176.88
					07/12/12	51.89	177.64
					10/24/12	51.56	177.97
					01/07/13	43.85	185.68
					04/29/13	48.09	181.44
					07/01/13	41.69	187.84

msl: mean sea level
bgs: below ground surface
Top-of-casing elevations surveyed with respect to North American Vertical Datum of 1988
[1] 0.15 feet of riser was removed on January 5, 2011.
[2] 0.13 feet of riser was removed on January 5, 2011.
[*] depth includes void encountered at total depth drilled.
[3] 0.75 feet of riser was removed on December 17, 2010.
[4] 0.78 feet of riser was removed on December 17, 2010.

TABLE 3-1
LOCKHEED MARTIN CORPORATION
BOREHOLE DATA AND WELL COMPLETION SUMMARY

Well ID	Date(s) Drilled	Total Depth Drilled (ft bgs)	Borehole Diameter (inches)	Completion	Zone	Monitored Interval (ft bgs)	Formation	Aquifer
Act 2 Wells								
WT-MW-1	04/23/08, 04/07/10-04/26/10 and 06/22/10	510	6	Westbay	1	47-95	Stockton	Upper
					2	100-112	Stockton	Upper
					3	117-145	Stockton	Upper
					4	150-180	Stockton	Upper
					5	212-230	Stockton	Confining
					6	355-365	Stockton	Lower
					7	395-415	Stockton	Lower
					8	444-464	Stockton	Lower
WT-MW-2	05/05/09-05/07/09	213	4	Westbay	1	SWL-80	Stockton	Upper
					2	83-117	Stockton	Upper
					3	120-154	Stockton	Upper
					4	157-187	Stockton	Upper
					5	190-213	Stockton	Confining
WT-MW-3	04/24/09-04/27/09	265	6	Screen	NA	165-180	Stockton	Upper
WT-MW-4	04/28/09-05/07/09	171	4	Screen	NA	115-150	Stockton	Upper
WT-MW-5	04/26/09-04/28/09	262	6	Westbay	1	45-105	Stockton	Upper
					2	110-150	Stockton	Upper
					3	155-165	Stockton	Upper
					4	170-225	Stockton	Upper
					5	230-262	Stockton	Lower
WT-MW-5Dss	06/06/10-06/08/10	320	6	Screen	NA	265-285	Stockton	Lower
WT-MW-5Dls	06/06/10-06/08/10	320	6	Screen	NA	298-318	Ledger	Lower
WT-MW-6	04/15/09-04/30-09	272	4	Open Hole	NA	22-272	Stockton	Upper
WT-MW-7	05/18/10, 05/19/10, and 06/15/10-06/18/10	500	6	Westbay	1	69-92	Stockton	Upper
					2	97-124	Stockton	Upper
					3	129-149	Stockton	Upper
					4	179-189	Stockton	Confining
					5	219-239	Stockton	Lower
					6	280-307	Stockton	Lower
					7	322-352	Stockton	Lower
					8	379-409	Stockton	Lower
					9	454-500	Stockton	Lower
WT-MW-8R	06/01/10-06/02/10	117*	6	Open Hole	NA	97-117*	Ledger	Lower
WT-MW-9s	05/06/10,05/07/10 and 05/10/10	300	6	Screen	NA	125-165	Stockton	Upper
WT-MW-9d	05/06/10,05/07/10 and 05/10/10	300	6	Screen	NA	250-300	Stockton	Unknown
WT-MW-9Dss	08/23/10-09/13/10	535	8	Screen	NA	477-497	Stockton	Lower
WT-MW-9Dls	08/23/10-09/13/10	535	8	Screen	NA	515-535	Ledger	Lower
WT-MW-10Ss	09/03/10-09/08/10	200	8	Screen	NA	52-82	Stockton	Upper

TABLE 3-1
LOCKHEED MARTIN CORPORATION
BOREHOLE DATA AND WELL COMPLETION SUMMARY

Well ID	Date(s) Drilled	Total Depth Drilled (ft bgs)	Borehole Diameter (inches)	Completion	Zone	Monitored Interval (ft bgs)	Formation	Aquifer
WT-MW-10Sd	09/03/10-09/08/10	200	8	Screen	NA	90-120	Stockton	Upper
WT-MW-10Ds	09/03/10-09/08/10	486	8	Screen	NA	145-165	Stockton	Upper
WT-MW-10Dd	09/03/10-09/08/10	486	8	Screen	NA	383-403	Stockton	Lower
WT-MW-11**	08/25/10-08/30/10	508*	6	Westbay	1	87-116	Stockton	Upper
					2	119-146	Stockton	Upper
					3	169-176	Stockton	Upper
					4	199-231	Stockton	Confining
					5	309-341	Stockton	Lower
WT-MW-12	1/4/2011	7	3	Screen	3-7	3-7	Overburden	Upper
WT-MW-15S	10/11/11-10/19/11	220	6	Open Hole	NA	SWL-212	Stockton	Upper
WTMW-15D	10/27/11-12/09/11	527	6	Screen	NA	517-527	Ledger	Lower
WT-MW-16SR	10/18/11-11/02/11 12/13/11-12/14/11	220	6	Westbay	1	SWL-65	Stockton	Upper
					2	70-130	Stockton	Upper
					3	135-180	Stockton	Upper
WT-MW-16D	10/11/11-10/30/11	359	6	Westbay	1	225-260	Stockton	Lower
					2	265-310	Stockton	Lower
					3	315-329	Stockton	Lower
WT-MW-17	11/09/11-11/15/11	522	6	Westbay	1	245-280	Stockton	Upper
					2	285-340	Stockton	Upper
					3	435-500	Stockton	Upper
					4	505-522	Ledger	Upper
WT-MW-18	10/09/12-10/11/12	300	6	Westbay	1	95-115	Stockton	Upper
					2	120-153	Stockton	Upper
					3	158-180	Stockton	Upper
					4	185-210	Ledger	Confining
					5	215-255	Ledger	Lower
					6	260-300	Ledger	Lower
WT-VI-201	09/07/10	70	6	Open Hole	NA	30-100	Stockton	Upper
WT-VI-202	09/09/10	90	6	Open Hole	NA	38-100	Stockton	Upper

TABLE 3-1
LOCKHEED MARTIN CORPORATION
BOREHOLE DATA AND WELL COMPLETION SUMMARY

Well ID	Date(s) Drilled	Total Depth Drilled (ft bgs)	Borehole Diameter (inches)	Completion	Zone	Monitored Interval (ft bgs)	Formation	Aquifer
ESA Wells								
ESA -MW-101s	09/10/10-09/27/10	200	6	Screen	NA	50-80	Stockton	Unknown
ESA-MW-101d	09/10/10-09/27/10	200	6	Screen	NA	147-172	Stockton	Unknown
ESA-MW-102s	09/21/10-09/23/10	200	6	Screen	NA	21-41	Stockton	Unknown
ESA-MW-102d	09/21/10-09/23/10	200	6	Screen	NA	121-141	Stockton	Unknown
ESA-MW-103s	09/21/10-09/23/10	200	6	Screen	NA	50-80	Stockton	Unknown
ESA-MW-103d	09/21/10-09/23/10	200	6	Screen	NA	125-145	Stockton	Unknown
ESA-MW-104s	09/26/11-09/27/11	200	8	Screen	NA	20-35	Stockton	Upper
ESA-MW-104m	09/26/11-09/27/11	200	8	Screen	NA	80-100	Stockton	Upper
ESA-MW-104d	09/26/11-09/27/11	200	8	Screen	NA	115-140	Stockton	Upper
ESA-MW-105Ss	09/19/11-09/23/11	250	8	Screen	NA	70-95	Stockton	Unknown
ESA-MW-105Sd	09/19/11-09/23/11	250	8	Screen	NA	110-130	Stockton	Unknown
ESA-MW-105Dss	09/19/11-09/22/11	367	8	Screen	NA	315-330	Stockton	Unknown
ESA-MW-105Dls	09/19/11-09/22/11	367	8	Screen	NA	354.5-364.5	Ledger	Unknown

ft: Feet

bgs: Below ground surface

SWL: Surface water level

NA: Not applicable

* Includes depth of measured void

All screen and riser are 2-inch diameter polyvinylchloride except for WT-MW-15D which is 2-inch stainless steel.

TABLE 3-2
LOCKHEED MARTIN CORPORATION
STRADDLE PACKER TESTING ZONES

Monitoring Well / Date of Testing	Zone	Depth Interval, (Feet bgs)
WT-MW-1 7/13/2009	1	SWL - 85
	2	85 - 95
	3	96 - 106
	4	116 - 126
	5	127 - 144
WT-MW-1 *(Deepened)* 7/21-22/2010	1	150 - 180
	2	200 - 230
	3	292 - 322
	4	390 - 420
	5	442 - 486
WT-MW-2 7/28-29/2009	1	SWL - 80
	2	83.5 - 98.5
	3	102 - 117
	4	120 - 135
	5	155 - 170
	6	191 - 213
WT-MW-3 7/9/2009	1	SWL - 73
	2	76.5 - 91.5
	3	109 - 124
	4	145 - 160
	5	165 - 180
	6	196 - 211
	7	225 - 240
	zone 8*	196 - 265
	zone 9*	165 - 180
	zone 10*	SWL - 160
WT-MW-4 7/30/2009	1	SWL - 75
	2	80 - 95
	3	123 - 138
	4	141 - 156
	5	156 - 171.5
WT-MW-5 7/15, 16, 17, 20/2009	1	SWL - 87
	2	90 - 105
	3	114 - 129
	4	136 - 151
	5	212 - 227
	6	230 - 245
	7	249 - 262

TABLE 3-2
LOCKHEED MARTIN CORPORATION
STRADDLE PACKER TESTING ZONES

Monitoring Well / Date of Testing	Zone	Depth Interval, (Feet bgs)
WT-MW-5D 7/8-9/2010	sandstone	269 - 289
	limestone	294.5 - 314.5
WT-MW-6 7/21-23/2009	1	* See Note Below
	2	SWL - 114
	3	117 - 127
	4	137 - 147
	5	157 - 167
	6	187 - 195
	7	198 - 208
	8	229 - 239
	9	242.3 - 272
WT-MW-7 7/14-16/2010	1	97 - 127
	2	277 - 307
	3	323 - 353
	4	379 - 409
	5	419 - 449
	6	454 - 500
WT-MW-8R	** No Straddle Packer Testing	
WT-MW-9 7/12/2010	1	60 - 85
	2	90 - 115
	3	115 - 140
	4	145 - 170
	5	269 - 300
WT-MW-9D	** No Straddle Packer Testing	
WT-MW-10S 9/16-17/2010	1	67 - 82
	2	87 - 102
	3	105 - 120
	4	178 - 200
	5	130 - 145
	6*	178 - 200
WT-MW-10D 9/23-24/2010	1	145 - 165
	2	190 - 210
	3	385 - 405
	4	457 - 486
WT-MW-11 9/27/2010	1	87 - 112
	2	115 - 140
	3	380 - 465
WT-MW-12	* No Straddle Packer Testing	
WT-MW-15S	* No Straddle Packer Testing	
WT-MW-15D	* No Straddle Packer Testing	
WT-MW-16SR 1/24-25/2012	1	SWL - 55
	2	98 - 113
	3	160 - 175

TABLE 3-2
LOCKHEED MARTIN CORPORATION
STRADDLE PACKER TESTING ZONES

Monitoring Well / Date of Testing	Zone	Depth Interval, (Feet bgs)
WT-MW-17	* No Straddle Packer Testing	
WT-MW-18	* No Straddle Packer Testing	
WT-VI-201	* No Straddle Packer Testing	
WT-VI-202	* No Straddle Packer Testing	
ESA-MW-104 10/4/2011	1	80 - 100
	2	115 - 145

Note: There was no Zone 1 tested at monitoring well WT-MW-6 because the original Zone 1 (SWL to 99 feet bgs) was combined with the original Zone 2 (104 to 114 feet bgs). The combined zones were designated as Zone 2.

*: Some intervals were repeated or combined for additional testing.

**: Some monitoring wells were not tested due to borehole conditions or predetermination of completion intervals.

TABLE 3-3
LOCKHEED MARTIN CORPORATION
PNEUMATIC SLUG TESTING RESULTS SUMMARY
March 16 - 28, 2011

Slug Test Location	Tested Interval (depth bgs)	Test Date (begin-end)	Aquifer Tested	Confined Aquifer	Hydraulic Conductivity* (feet/day)	Influenced Peripheral Monitoring Wells
WT-MW-1	70-195	03/24/11 (14:40-15:10)	Shallow	No	895	WT-MW-2 (83-117), WT-MW-2 (120-154), WT-MW-7 (97-124), and WT-MW-11 (119-146)
	190-265	03/25/11 (15:46-16:19)	Confining Zone	No	0.01	None
	300-477	03/25/11 (11:37-12:00)	Deep	Yes	3.8	WT-MW-7 (379-409), WT-MW-7 (454-500), and WT-MW-11 (87-116)
WT-MW-3	165-180	03/16/11 (09:53-10:48)	Shallow	No	0.1	WT-MW-10Ds
WT-MW-4	115-150	03/16/11 (12:30-13:30)	Shallow	No	1.1	WT-MW-11 (119-146)
WT-MW-5	60-150	03/23/11 (10:10-10:41)	Shallow	No	0.7	WT-MW-2 (83-117), WT-MW-2 (120-154), WT-MW-7 (97-124), and WT-MW-11 (119-146)
	160-250	03/22/11 (16:13-16:58)	Confining Zone	No	9.9	WT-MW-7 (219-239)
WT-MW-5Dss	265-285	03/18/11 (11:51-14:00)	Deep	Yes	0.04	None
WT-MW-5Dls	298-318	03/18/11 (14:30-15:15)	Deep	Yes	0.7	None
WT-MW-6	120-180	03/28/11 (15:22-15:56)	Shallow	No	0.04	None
	180-272	03/28/11 (13:46-14:18)	Shallow	No	0.5	None
WT-MW-8R	97-117	03/18/11 (16:00-16:45)	Deep	No	38	None
WT-MW-9s	125-165	03/16/11 (15:30-16:09)	Shallow	No	1.6	None
WT-MW-9d	250-300	03/16/11 (16:35-17:22)	Shallow	No	0.002	None
WT-MW-9Dss	477-497	03/21/11 (10:40-11:22)	Deep	Yes	0.1	None
WT-MW-9Dls	515-535	03/21/11 (11:54-14:04)	Deep	Yes	0.1	None
WT-MW-10Ss	52-82	03/17/11 (14:15-14:44)	Shallow	No	0.2	None

TABLE 3-3
LOCKHEED MARTIN CORPORATION
PNEUMATIC SLUG TESTING RESULTS SUMMARY
March 16 - 28, 2011

Slug Test Location	Tested Interval (depth bgs)	Test Date (begin-end)	Aquifer Tested	Confined Aquifer	Hydraulic Conductivity* (feet/day)	Influenced Peripheral Monitoring Wells
WT-MW-10Sd	90-120	03/17/11 (12:04-13:03)	Shallow	No	0.3	None
WT-MW-10Ds	145-165	03/17/11 (09:20-10:18)	Shallow	No	0.4	WT-MW-2 (157-187), WT-MW-3, and WT-MW-7 (179-189)
WT-MW-10Dd	383-403	03/17/11 (15:22-16:17)	Deep	Yes	0.01	WT-MW-10Ds

bgs: below ground surface

*: averaged if multiple tests were conducted

TABLE 3-4
LOCKHEED MARTIN CORPORATION
COLLOIDAL BORESCOPE RESULTS SUMMARY

Location	Depth (feet bgs)	Results
WT-MW-5Dss	266.8	No Observed Flow
WT-MW-5Dss	271.0	No Observed Flow
WT-MW-5Dss	284.0	No Observed Flow
WT-MW-5Dls	307.5	125 ft/d, 52° (NE) and 90.7 ft/d, 30° (NNE)
WT-MW-5Dls	311.7	221 ft/d, 294° (WNW) and 110 ft/d, 150° (SE)
WT-MW-5Dls	314.5	No Observed Flow
WT-MW-8R	98.0	87 ft/d, 317° (NW)
WT-MW-9s	127.8	No Observed Flow
WT-MW-9s	134.0	425 ft/d, 358° (N)
WT-MW-9d	270.8	No Observed Flow
WT-MW-9d	274.2	19.0 ft/d, 71° (ENE)
WT-MW-9d	290.0	11.6 ft/d, 101° (E)
WT-MW-9Dss	479.0	No Observed Flow
WT-MW-9Dss	488.0	No Observed Flow
WT-MW-9Dss	493.6	No Observed Flow
WT-MW-9Dls	None	No borehole geophysics available over pertinent interval
WT-MW-10Ds	148.2	127 ft/d, 204° (SSW)
WT-MW-10Ds	162.6	Video Obscured by Silt
WT-MW-10Dd	389.6	No Observed Flow

bgs: below ground surface
ft/d: feet per day

TABLE 3-5
LOCKHEED MARTIN CORPORATION
EASTERN SANITARY SEWER INVESTIGATION ANALYTICAL RESULTS
Manhole MH-H Soil Investigation
Volatile Organic Compounds (8260B)

Sample Location	Sample Date	Tetrachloroethene (PCE) ug/kg	Freon 113 µg/kg	Chloroform µg/kg	Toluene µg/kg	Carbon Disulfide µg/kg	Xylene µg/kg	Cumene* µg/kg	Methylcyclohexane µg/kg	Acetone µg/kg
MH-H-01	08/16/12	0.33 J	ND	0.28 J	0.32 J	0.25 J	0.24 J	ND	0.23 J	29.5
MH-H-02	08/16/12	ND	ND	1.9 J	ND	ND	ND	ND	ND	ND
MH-H-03	No recoverable sample material									
MH-H-04	08/16/12	0.73 J	1.5 J	1.2 J	0.51 J	ND	ND	0.41 J	0.67 J	ND
MH-H-05	08/16/12	ND	ND	ND	ND	ND	ND	ND	ND	ND
Residential - SWHS		500	10,000,000	8,000	100,000	150,000	1,000,000	84,000	NA	370,000
Non-Residential - SWHS		500	10,000,000	8,000	100,000	530,000	1,000,000	350,000	NA	9,200,000

tes & Abbreviations:

µg/kg: micrograms per kilogram
*: Cumene = Isopropylbenzene
J: indicates an estimated value below practical quantitation limits
SWHS: Pennsylvania Department of Environmental Protection Statewide Health Standard

FIGURES

NOTES:
1. Topographic map derived from a portion of the 7 ½ minute Valley Forge, Pennsylvania Quadrangle dated 1992.
2. Site Location Map derived from the *Site Characterization Report*, "Figure 1 – Site Location Map", dated 02/24/2011 prepared by The H&K Group.

LOCKHEED MARTIN CORPORATION

FIGURE 2-1
SITE LOCATION MAP

DRAWN BY: W.M.S.	SCALE: 1"=2000'	DRAWING NO.: ©
APPROVED BY: M.W.E.	DATE: 11/22/2013	EL618A-SLM-2-1

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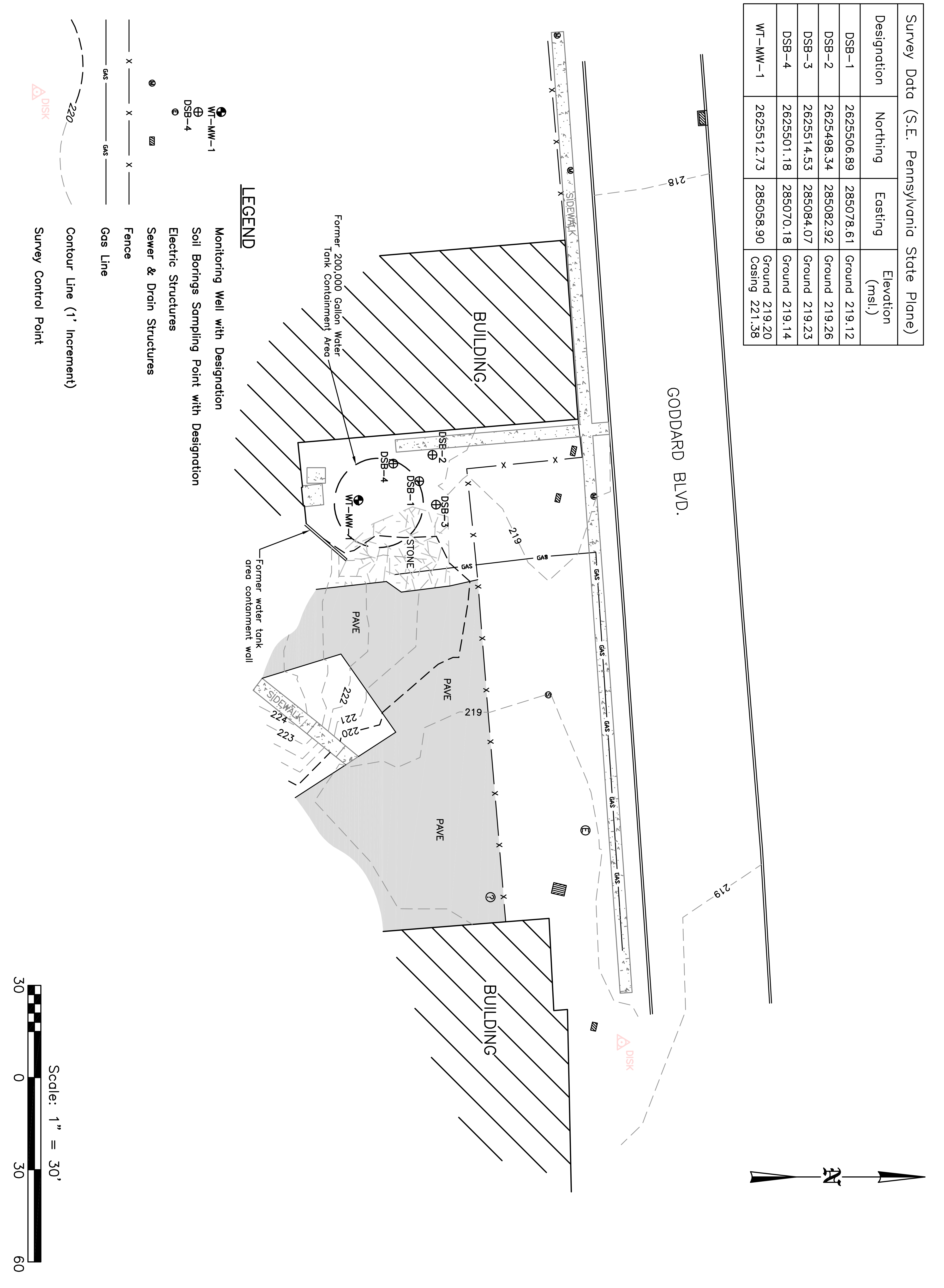
Drawing: Y:\0-PROJECTS\0-CONSULTING\CORPORATE\EL-618A Remedial Investigation Report\2013.11.22_RIR_SUB1\FIGURES\Fig 2-1_Site Location Map\EL618A-SLM-2-1.dwg Plotted: 2013-11-21 – 3:39 PM By: sbrown

Survey Data (S.E. Pennsylvania State Plane)

Designation	Northing	Easting	Elevation (msl.)
DSB-1	2625506.89	285078.61	Ground 219.12
DSB-2	2625498.34	285082.92	Ground 219.26
DSB-3	2625514.53	285084.07	Ground 219.23
DSB-4	2625501.18	285070.18	Ground 219.14
WT-MW-1	2625512.73	285058.90	Ground 219.20 Casing 221.38



Notes:
1. Plan derived from *Report of Results – Former 200,000 Gallon Water Tank Containment Area*, "Figure 2 – Investigation Area Site Layout", dated 05/27/2008, prepared by The H&K Group.

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FIGURE 2-2
SOIL BORING LOCATION MAP

DRAWN BY:	W.M.S.	SCALE:	1" = 30'	DRAWING NO.:
APPROVED BY:	A.R.H.	DATE:	11/22/2013	EL618A-SBL-2-2

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LEGEND

	Approximate Property Line
250	Existing Major Contour Line
	Existing Tree/Wood Line
	Occupied Structure/Outbuilding
	Existing Unpaved Road/Trail
	Existing Paved Road
X	Existing Fence
	Existing Utility Pole
MW-1	Monitoring Well Location with Designation
	Soil Remediation Area

Notes:

1. Photogrammetric Digital Mapping by Aero-Metric, 45180 Business Court, Dulles, Virginia, 20166-6706. Date of photography August 25, 2009. Grid based on Pennsylvania State Plane Coordinate System South Zone NAD 1983. Vertical datum based on NGS Mean Sea Level.
2. Derived from the *Quarterly Groundwater Monitoring Report, Third Quarter 2013*, "Figure 2.2 – Site Features Map", dated 09/18/2013, prepared by The H&K Group.

DATE	REVISIONS	BY	CHK.	REV.

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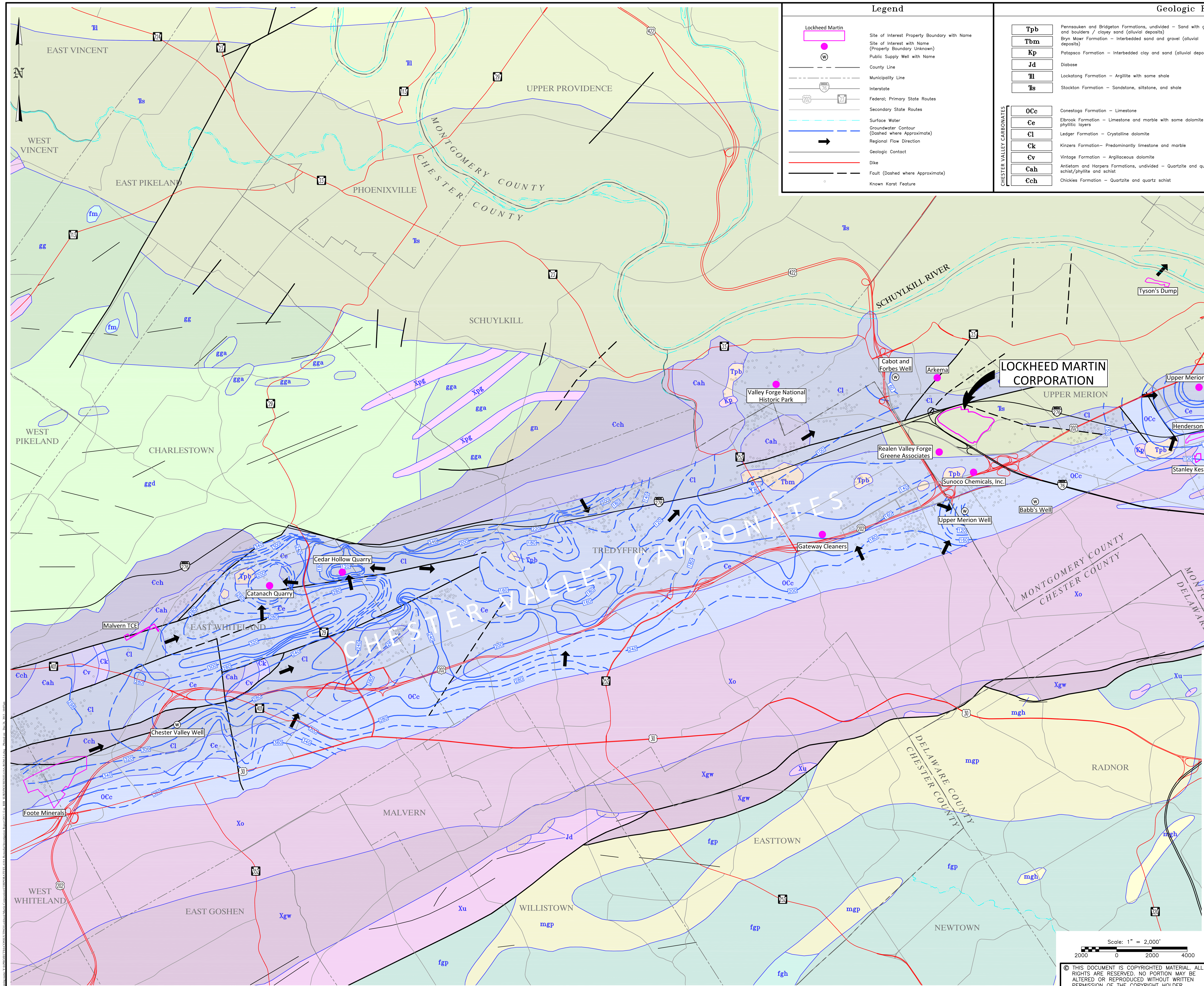
FIGURE 2-3
SITE FEATURE MAP

DRAWN T.J.G.	THE H&K GROUP ENGINEERING & ENVIRONMENTAL Services Division	SCALE 1" = 100'
DESIGN --		DRAWING NO. © EL-618A-SFM-2-3
CHECKED M.W.E.	2052 Lucon Road ◊ P.O. Box 196 ◊ Skippack, PA 19474 ◊ (610) 584-8500	SHEET 1 of 1
DATE 01/20/14		



Legend

Lockheed Martin	Site of Interest Property Boundary with Name
	Site of Interest with Name (Property Boundary Unknown)
W	Public Supply Well with Name
	County Line
	Municipality Line
76	Interstate
202 23	Federal; Primary State Routes
	Secondary State Routes
	Surface Water
	Groundwater Contour (Dashed where Approximate)
	Regional Flow Direction
	Geologic Contact
	Dike
	Fault (Dashed where Approximate)
	Known Karst Feature

Geologic Formations

Tpb	Pennsauken and Bridgeton Formations, undivided – Sand with gravel and boulders / clayey sand (alluvial deposits)
Tbm	Bryn Mawr Formation – Interbedded sand and gravel (alluvial deposits)
Kp	Patapsco Formation – Interbedded clay and sand (alluvial deposits)
Jd	Diabase
₸l	Lockatong Formation – Argillite with some shale
₸s	Stockton Formation – Sandstone, siltstone, and shale

CHESTER VALLEY CARBONATES

O€c	Conestoga Formation – Limestone
€e	Elbrook Formation – Limestone and marble with some dolomite and phyllitic layers
€l	Ledger Formation – Crystalline dolomite
€k	Kinzers Formation– Predominantly limestone and marble
€v	Vintage Formation – Argillaceous dolomite
€ah	Antietam and Harpers Formations, undivided – Quartzite and quartz schist/phyllite and schist
€ch	Chickies Formation – Quartzite and quartz schist

Xpg	Pegmatite
Xu	Ultramafic rocks, (previously mapped as Xs, Serpentinite)
Xo	Octoraro Schist
Xqw	Glenarm Wissahickon Formation – oligoclase–mica schist
Xw	Wissahickon Schist, Oligoclase–mica schist
ggd	Granodiorite and granodiorite gneiss
gga	Gabbroic gneiss and gabbro
gg	Graphitic gneiss
fm	Franklin marble
fgh	Felsic gneiss, hornblende–bearing
fgp	Felsic gneiss, pyroxene–bearing
mgh	Mafic gneiss, hornblende–bearing
mgp	Mafic gneiss, pyroxene–bearing
gn	Granitic gneiss

Notes:

1. Crater Resources site boundary derived from Environmental Resources Management, Inc., 1999, The Crater Resources Participating Parties Group Remedial Investigation Report, Volume 1, Crater Resources Site, 376 p, accessed at: http://www.epa.gov/reg3hwmd/npl/PAD009862939.htm
2. Malvern TCE site boundary derived from Golder Associates, 2002, Pre–Design Investigation Report for the Malvern TCE Superfund Site, East Whiteland Township, Pennsylvania, 537 p, accessed at: http://loggerhead.epa.gov/arweb/public/advanced_search.jsp
3. Stanly Kessler site boundary derived from Groundwater Technology, 1993b, Stanley Kessler NPL Site, Upper Merion Township, Pennsylvania, Draft Feasibility Study, 169 p, accessed at: http://www.epa.gov/reg3hwmd/npl/PAD009862939.htm
4. Foote Minerals site boundary derived from He, Henry, Y and Andrew H. Thalheimer, 2004, Groundwater Flow and Contaminant Transport Modeling of a Fractured bedrock Aquifer with Solution Channels at a Southeastern Pennsylvania Superfund Site, National Groundwater Association, 2004 U.S.Epa/NGWA Fractured Rock Conference, September 13–15, 2004, p. 895–907, accessed at: http://info.ngwa.org/gwol/pdf/042180620.pdf
5. Henderson Road site boundary derived from U.S. Department of the Interior, 2009, Evaluation of Water–Chemistry and Water–Level Data at the Henderson Road Superfund Site, Upper Merion Township, Montgomery, County, Pennsylvania, 1991–2008: U.S. Geological Survey, in cooperation with the U.S. Environmental Protection Agency, Scientific Investigations Report 2009–5101, 109 p., accessed at: http://pubs.usgs.gov/sir/2009/5101/sir2009–5101.pdf
6. Tyson's Dump site boundary derived from U.S. Environmental Protection Agency, 1990, Declaration for the Record of Decision, Tyson's Superfund Site, Upper Merion Township, Montgomery County, Pennsylvania, operable Unit Three, 77 p., accessed at: http://loggerhead.epa.gov/arweb/public/advanced_search.jsp
7. Lockheed Martin Corporation site boundary derived from field survey conducted by Wilkinson & Associates, Inc., 1220 Valley Forge Road – Unit 25, Valley Forge, PA 19482, received February 4, 2009.
8. Montgomery County Groundwater Contours derived from RT Environmental Services, Inc., 1998, letter to Roger J. Hornberger, Manager, Hydrogeologist, Pennsylvania Department of Environmental Protection, Mineral Mining Operations, letter dated July 24, 1998, 20 p.
9. Chester County Groundwater Contours derived from United States Geological Survey, 1987, Effect of Urbanization on the Water Resources of Eastern Chester County, Pennsylvania, Water–Resources Investigations Report 87–4098, prepared in cooperaion with the Chester County Water Resources Authority, 131 p.
10. Locations of karst features derived from Arc/Info coverage entitled "Digital Data Site of Mapped Karst Features in South–Central and Southeastern Pennsylvania," provided by the *DCNR Bureau of Topographic and Geologic Survey*, 2007, downloaded from *Pennsylvania Spatial Data Access (PASDA)*, 11/19/2013, (http://www.pasda.psu.edu).
11. Plan derived from the *Regional Research Report*, "Figure 1– Geologic Map", dated 04/07/2011, prepared by The H&K Group.

Scale: 1" = 2,000'

2000 0 2000 4000

DATE	REVISIONS	BY	CHK.	REV.

LOCKHEED MARTIN CORPORATION

FIGURE 2–4
REGIONAL GEOLOGIC MAP

DRAWN	W.M.S.
DESIGN	M.W.E.
CHECKED	S.S.D.
DATE	11/22/2013

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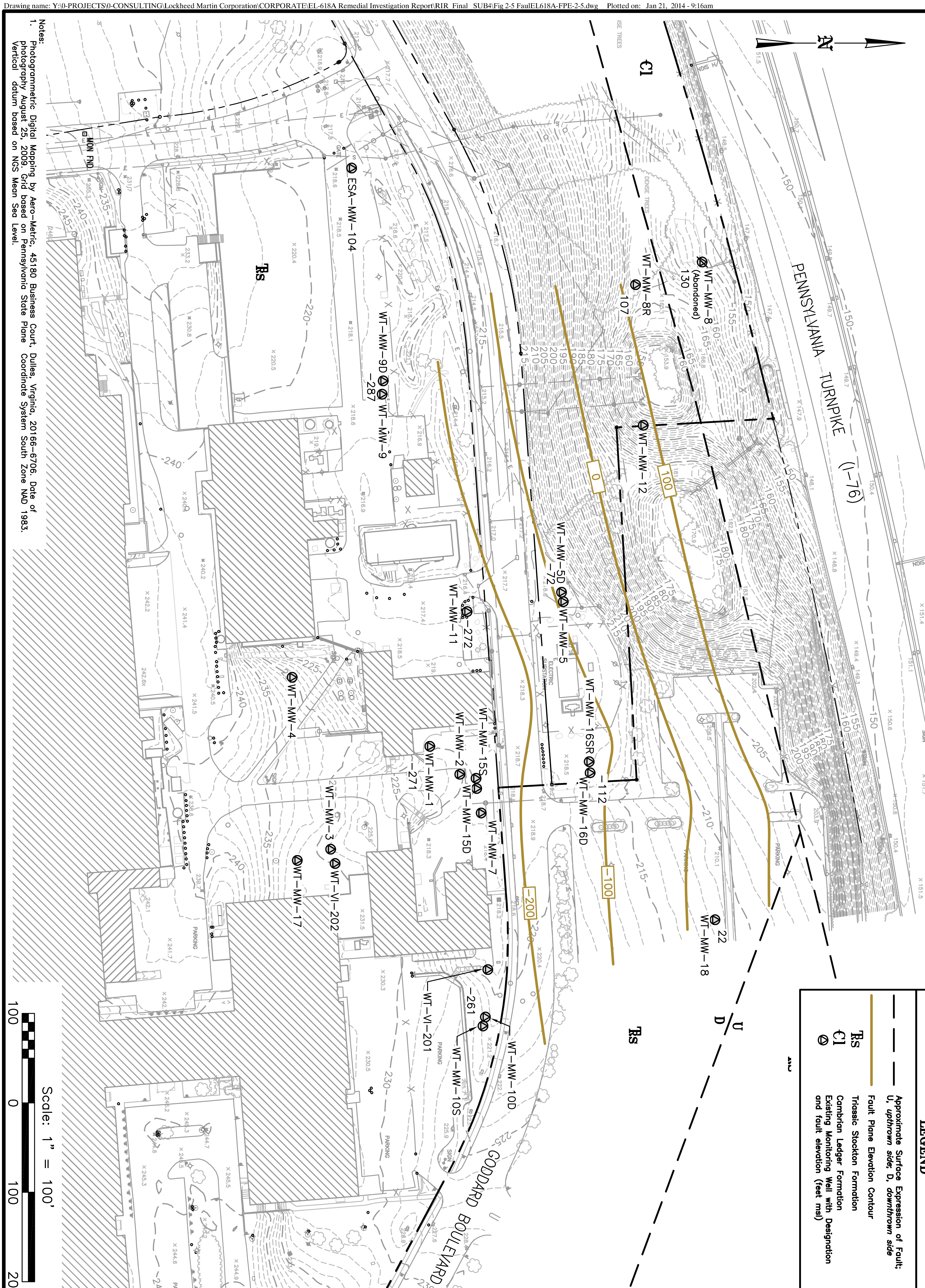
SCALE AS SHOWN
DRAWING NO. © EL618A–RGM–2–4
SHEET 1 of 3

Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\RIR_Final_SUB4\Fig 2-5 FaulEL618A-FPE-2-5.dwg Plotted on: Jan 21, 2014 - 9:16am



Notes:
1. Derived from the the *Conceptual Site Model* figure titled "Fault Plane Elevation and Site Specific Geology" dated 12/13/2010, prepared by The H&K Group.

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FIGURE 2-5
FAULT PLANE CONTOUR MAP

DRAWN BY:	T.J.G.	SCALE:	1" = 100'	DRAWING NO.:
APPROVED BY:	M.W.E.	DATE:	1/20/2014	EL618A-FPE-2-5 ©

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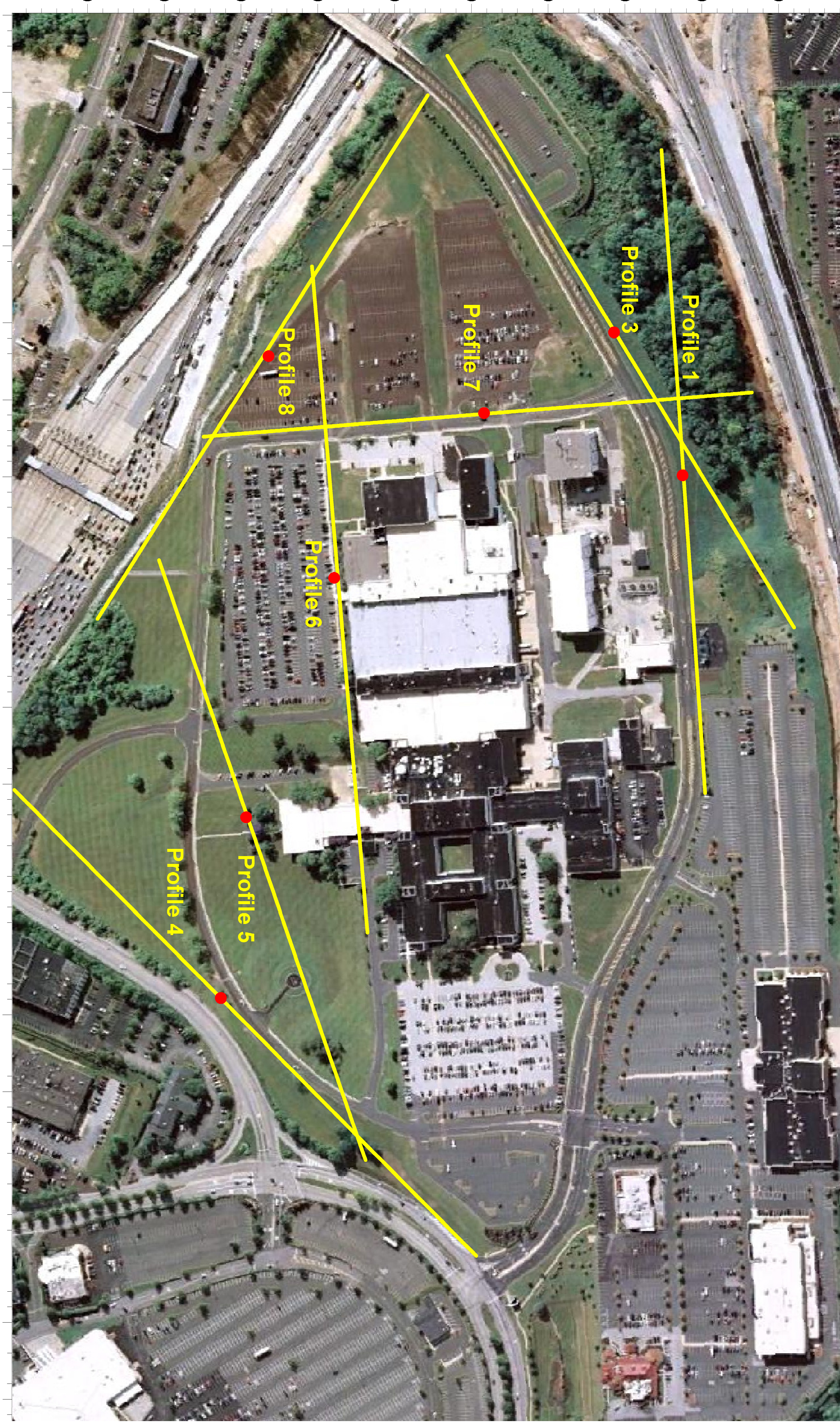
Notes:
Coordinates in Pennsylvania State Plane Grid, NAD-83 datum.
Basemap Google Earth and DGPS survey by Enviroscan, Inc.

0ft 500ft 1000ft

N

Profile Center
Profile Extents

Easting (feet)



Northing (feet)

Scale: 1" = 300'
300 0 300 600

Notes:
1. Derived from the *Lithology Profiling Survey, 800'x800' (15-acre) Area* report, figure titled "Vertical Electrical Sounding Survey Layout Map", dated 11/16/2009, prepared by Enviroscan, Inc.

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FIGURE 3-1
GEOPHYSICAL PROFILE LOCATIONS

DRAWN BY:	S.K.B.	SCALE:	AS SHOWN	DRAWING NO.: ©
APPROVED BY:	M.W.E.	DATE:	11/22/2013	EL618A-SGM-3-1

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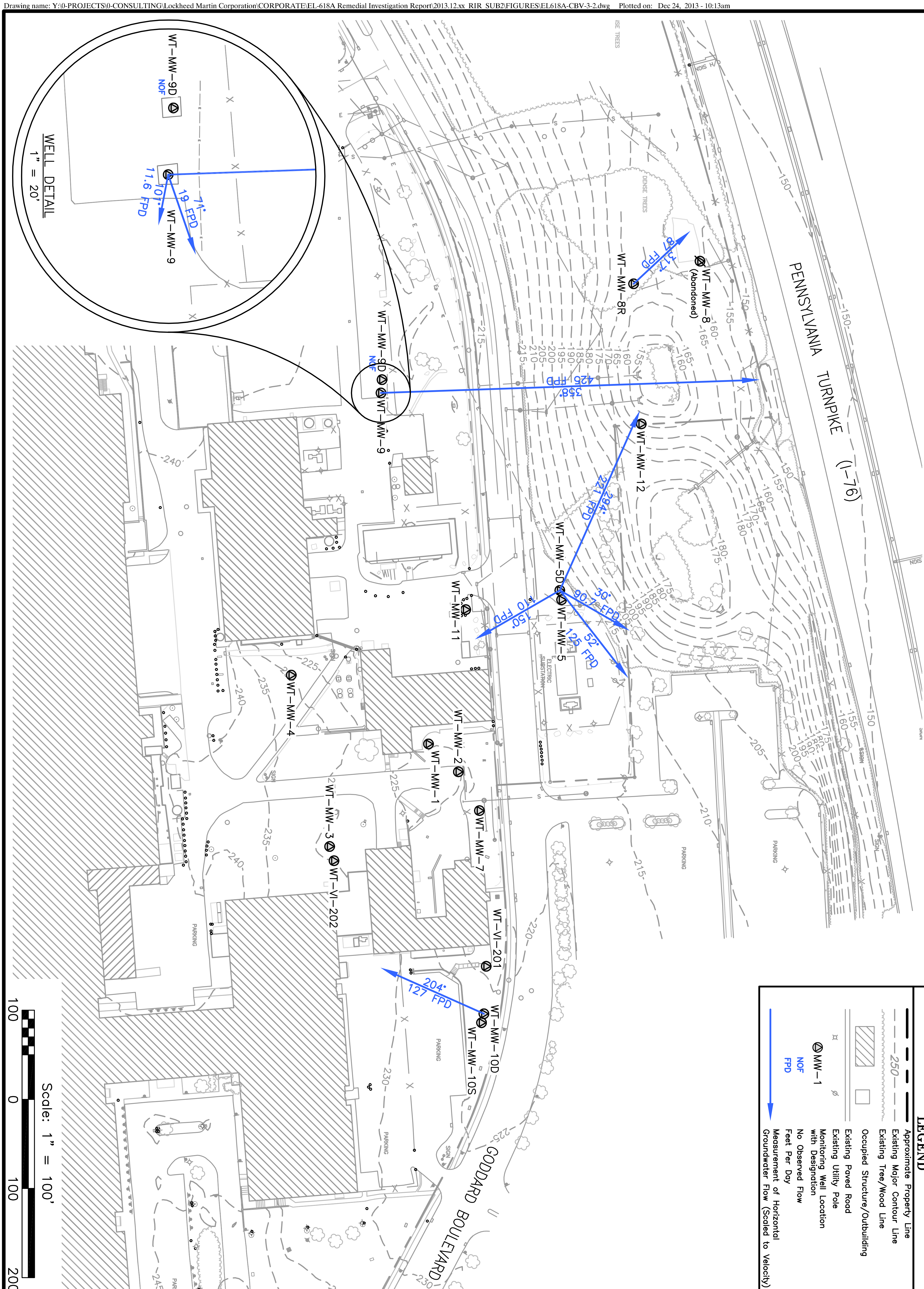

Notes:
1. Photogrammetric Digital Mapping by Aero-Metric, 45180 Business Court, Dulles, Virginia, 20166-6706. Date of photography August 25, 2009. Grid based on Pennsylvania State Plane Coordinate System South Zone NAD 1983. Vertical datum based on NGS Mean Sea Level.
2. Derived from *Colloidal Borescope Horizontal Flow Directions Report*, "Figure 1 – Colloidal Borescope, Horizontal Groundwater Flow Measurements", dated 04/05/2011, prepared by The H&K Group.

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FIGURE 3-2
COLLOIDAL BORESCOPE VECTORS

DRAWN BY: W.M.S.	SCALE: 1" = 100'	DRAWING NO.: ©
APPROVED BY: M.W.E.	DATE: 12/24/2013	EL618A-CBV-3-2

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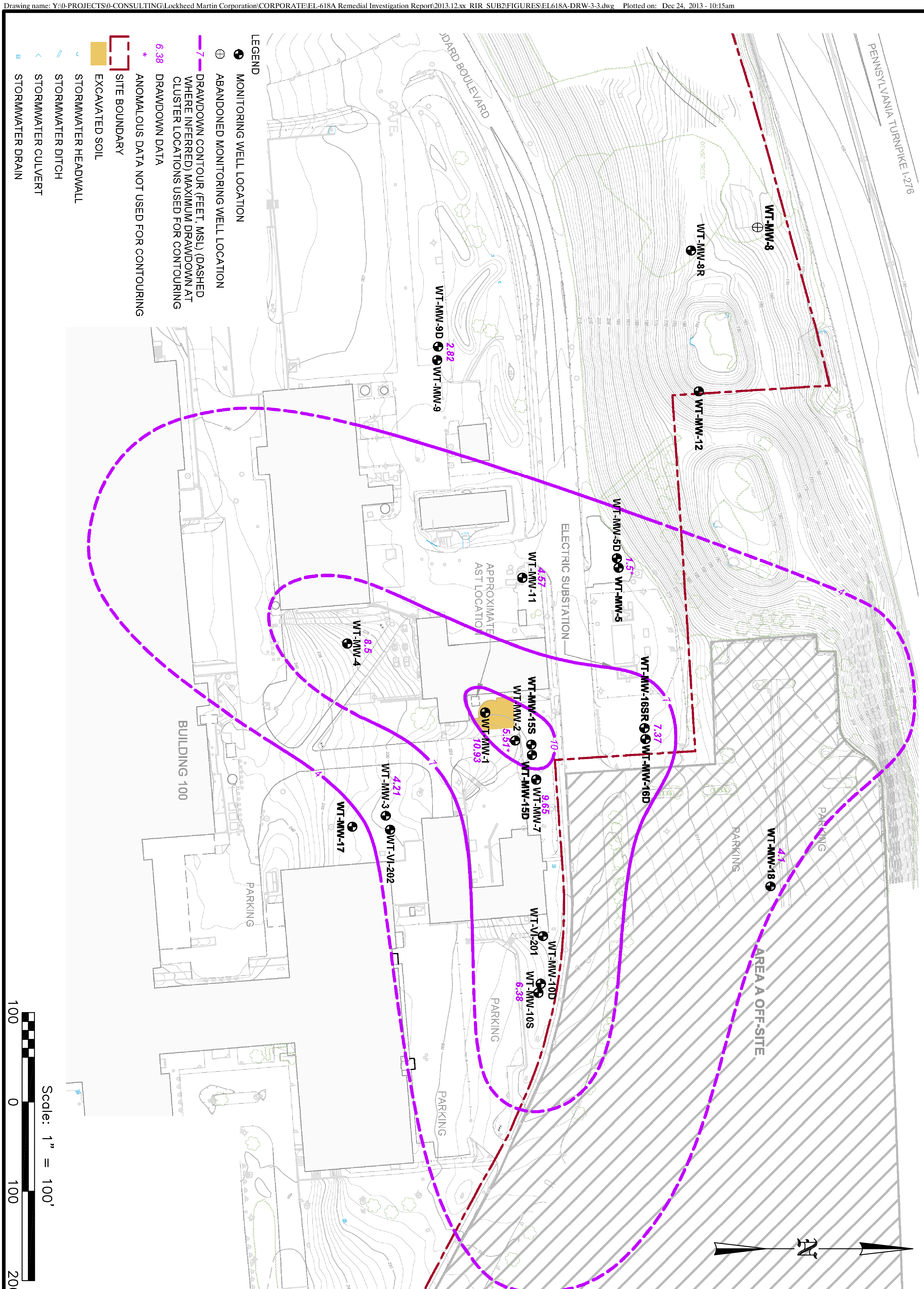
Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\2013.12.xx_RIR_SUB2\FIGURES\EL618A-DRW-3-3.dwg Plotted on: Dec 24, 2013 - 10:15am



Notes:
1. Derived from the *Technical Memorandum: April 2013 Aquifer Testing Results*, Figure 4 titled "WT-MW-15S Pumping Test Drawdown at 20,4 Hours", dated 06/06/2013, prepared by Tetra Tech, Inc.

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FIGURE 3-3
PUMPING TEST DRAWDOWN MAP

DRAWN BY:	S.K.B.	SCALE:	AS SHOWN	DRAWING NO.:	©
APPROVED BY:	M.W.E.	DATE:	12/24/2013	EL618A-DRW-3-3	

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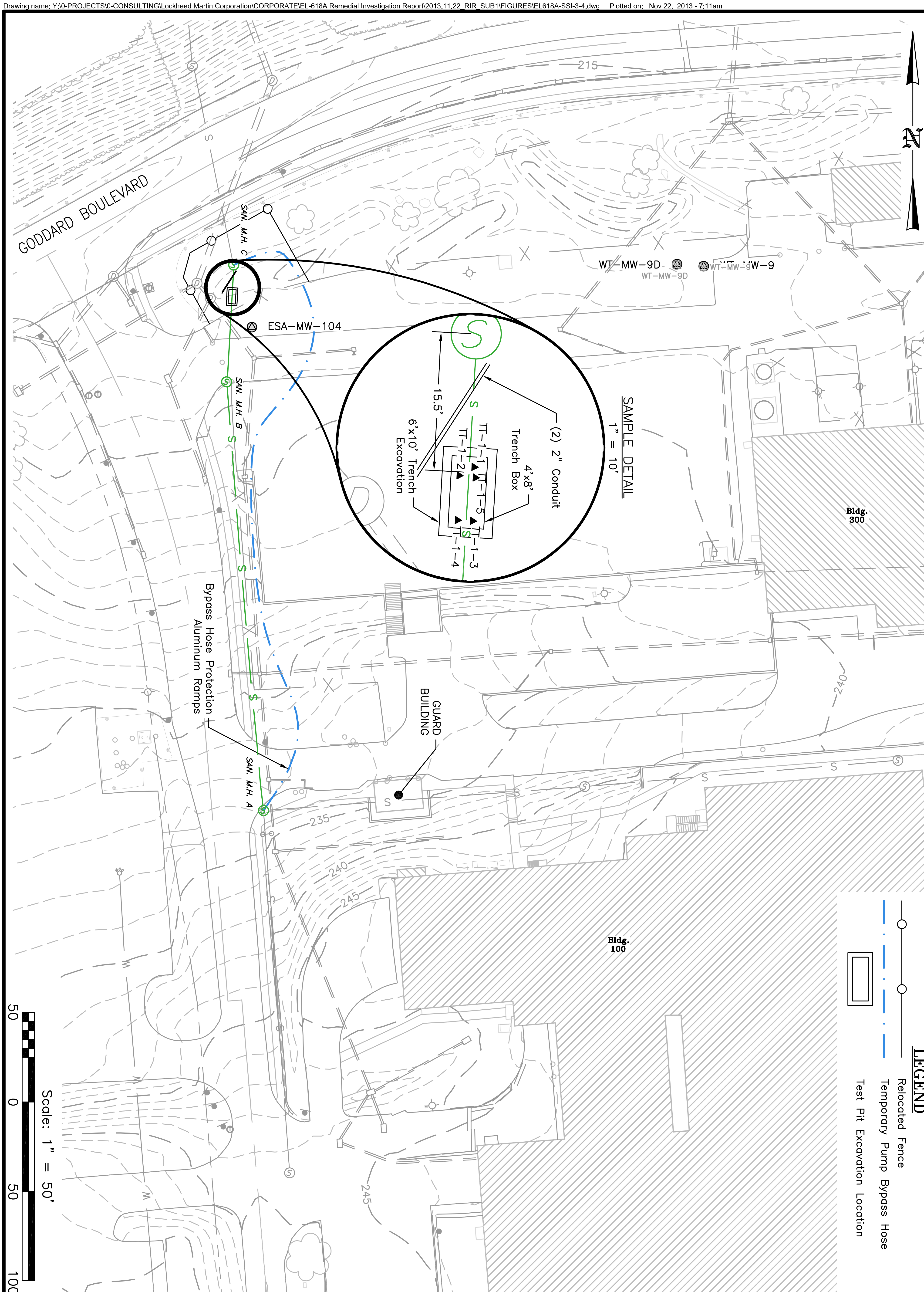

Notes:
1. Photogrammetric Digital Mapping by Aero-Metric, 45180 Business Court, Dulles, Virginia, 20166-6706. Date of photography August 25, 2009. Grid based on Pennsylvania State Plane Coordinate System South Zone NAD 1983. Vertical datum based on NGS Mean Sea Level.
2. Utility lines and structures derived from field survey dated July through November, 2011 conducted by Haines & Kibblehouse Inc.
3. Derived from *West Sanitary Sewer Investigation Report*, figure titled "Sanitary Sewer Investigation Site Plan", dated 12/01/2011, prepared by The H&K Group.

LOCKHEED MARTIN CORPORATION

FIGURE 3-4
SANITARY SEWER INVESTIGATION SITE PLAN (WEST)

DRAWN BY: W.M.S.	SCALE: 1" =50'	DRAWING NO.: EL618A-SSI-3-4 ©
APPROVED BY: S.S.D.	DATE: 11/22/2013	

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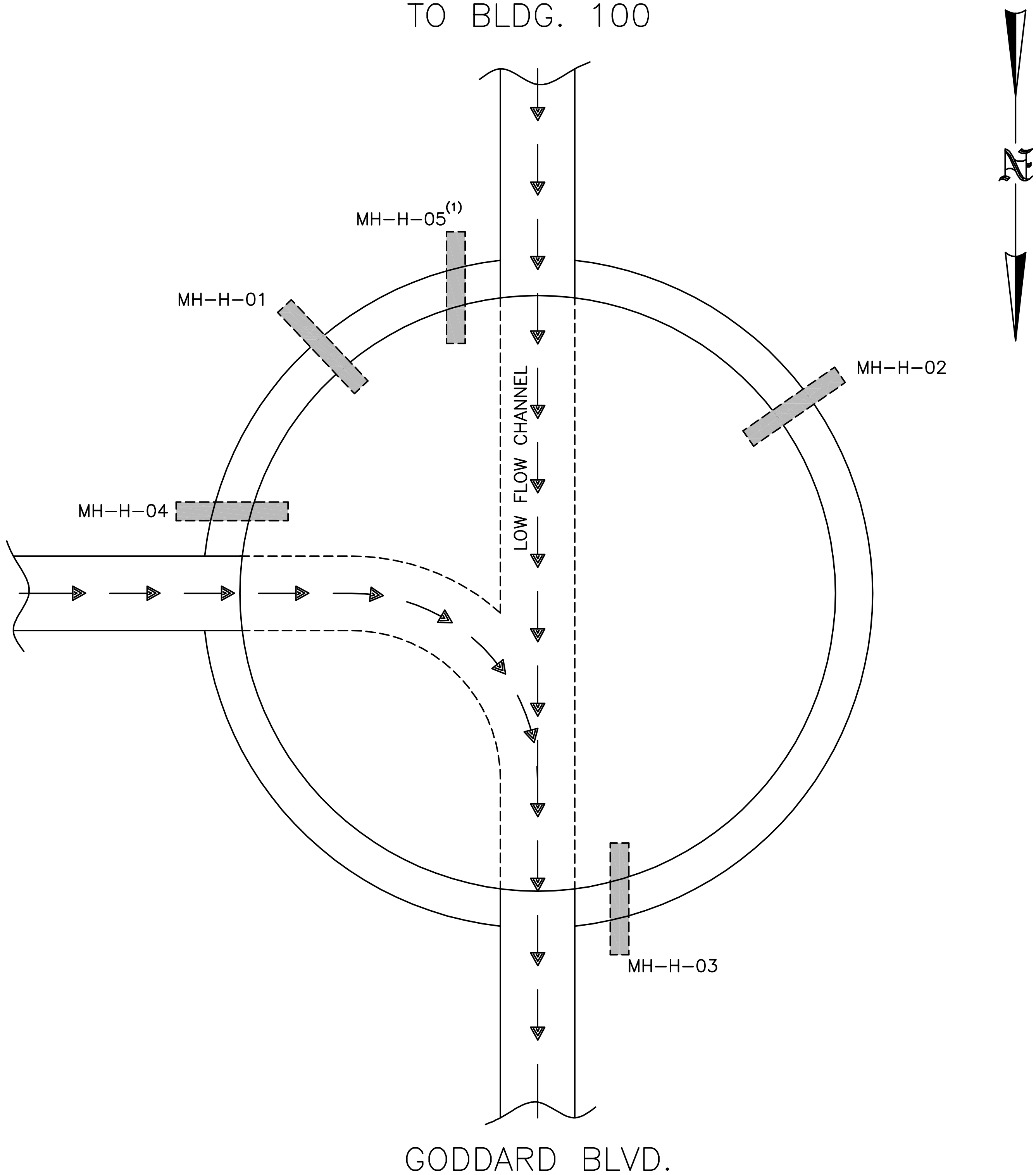

NOTE:
(1) MH-H-05 Located 4 ft. above MH-H-01 through MH-H-04

LOCKHEED MARTIN CORPORATION

FIGURE 3-5
EASTERN SANITARY MANHOLE SAMPLING PLAN

DRAWN BY: T.J.G.	SCALE: N.T.S.	DRAWING NO.: © EL604A-ESM-3-5
APPROVED BY: S.S.D.	DATE: 11/22/2013	

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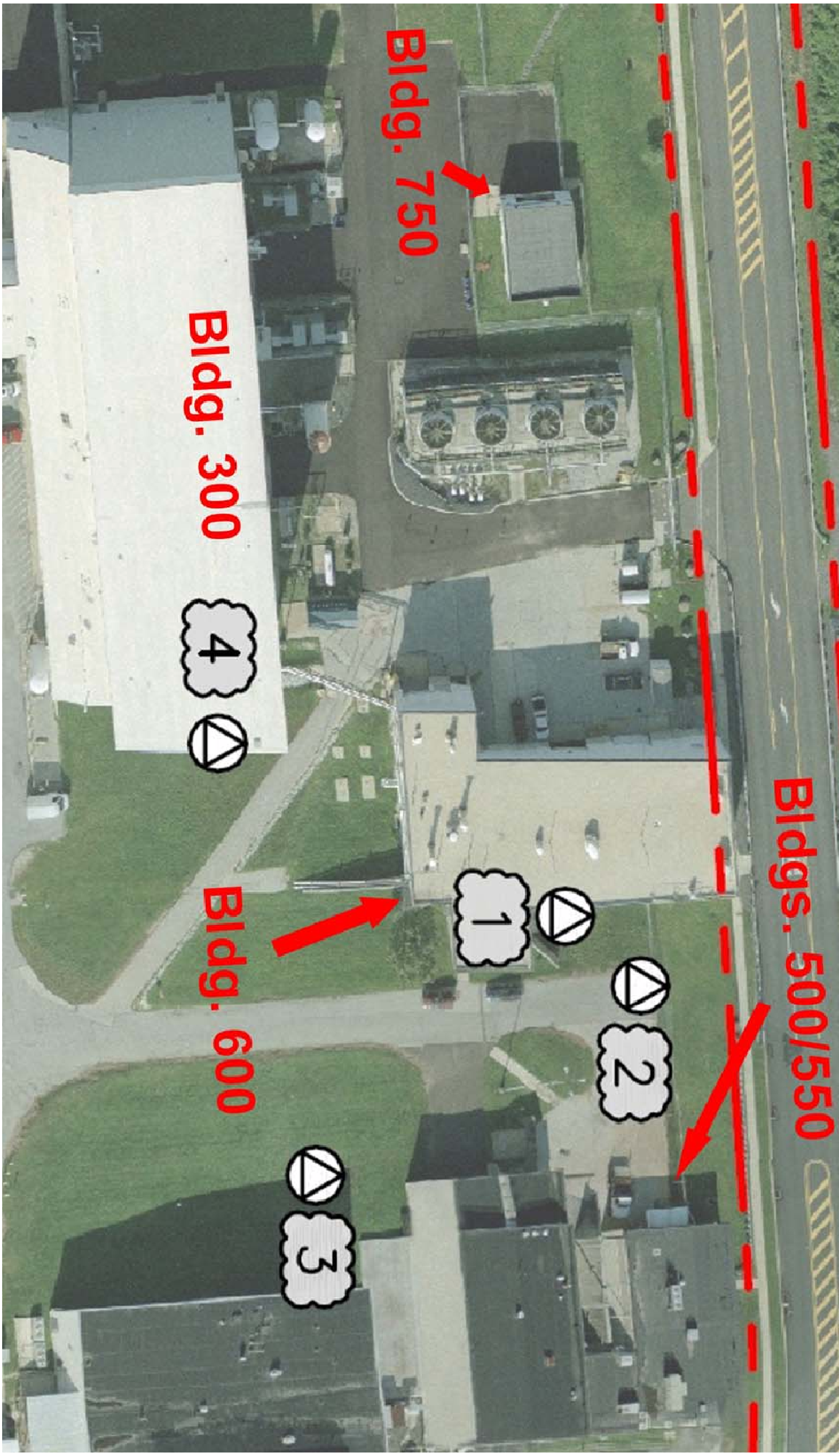
Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\2013.11.22 RIR SUB1\FIGURES\EL604A-ESM-3-5.dwg Plotted on: Nov 22, 2013 - 10:05am

Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\2013.11.22_RIR_SUB1\FIGURES\EL618A-VIP-3-6.dwg Plotted on: Nov 22, 2013 - 7:16am



Notes:
1. Derived from the *Vapor Intrusion Qualitative Assessment and Initial Sampling Results* report, figure titled "Appendix A: Photograph with Test Well Locations and Building Identification" 07/28/2010, prepared by Everett Mount, CIH, CSP.

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FIGURE 3–6
VAPOR INTRUSION SITE PLAN

DRAWN BY: SKB	SCALE: N.T.S.	DRAWING NO.: ©
APPROVED BY: MWE	DATE: 11/22/2013	EL618A–VIP–3–6

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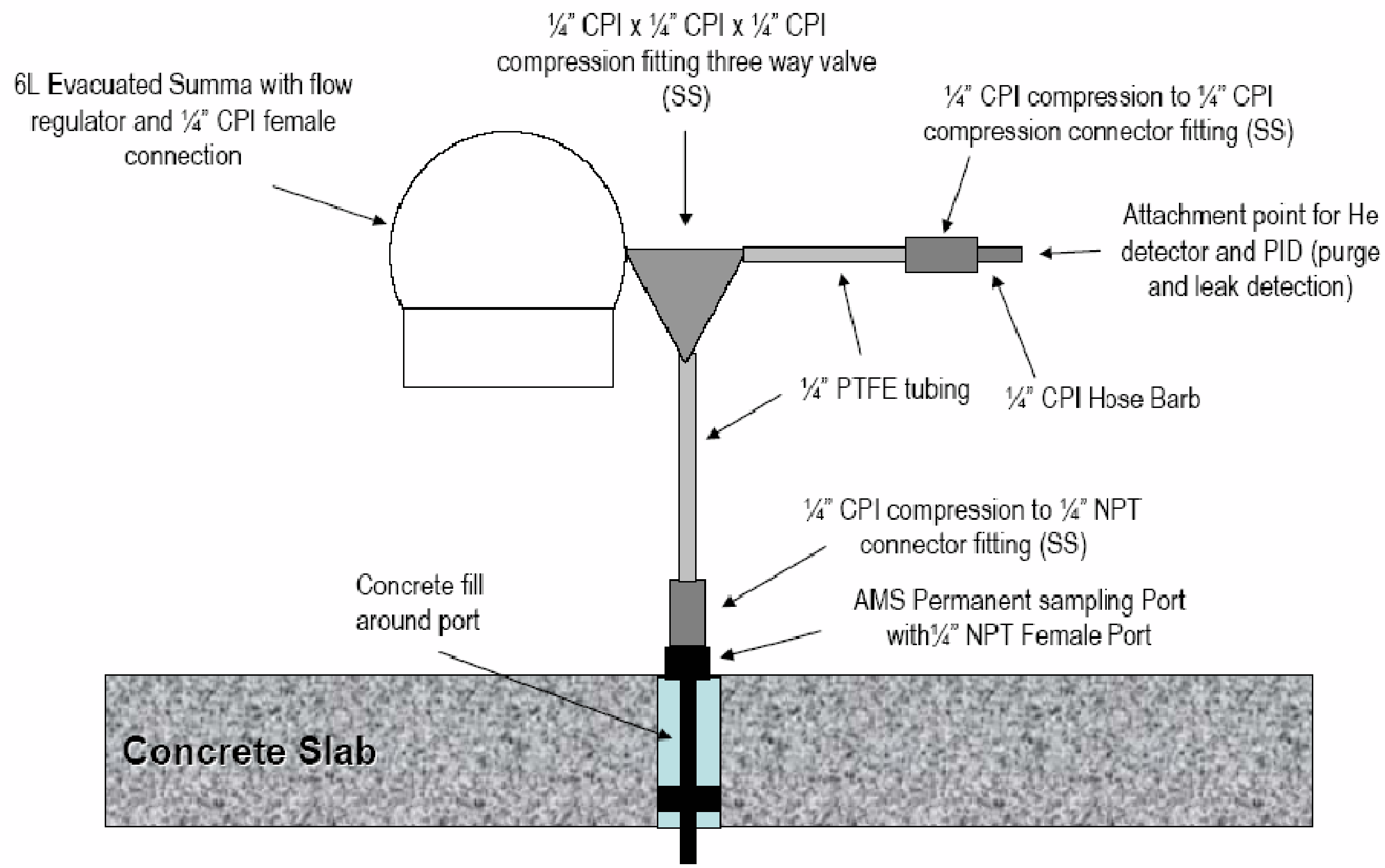

NOTES:
1. Derived from the *Vapor Intrusion Qualitative Assessment and Initial Sampling Results* report, figure subtitled "Typical Sub–slab Vapor Sampling Train, dated 07/28/2010 prepared by Everett Mount, CIH, CSP.

LOCKHEED MARTIN CORPORATION

FIGURE 3–7
TYPICAL SUB–SLAB VAPOR SAMPLING TRAIN DETAIL

DRAWN BY:	SKB	SCALE:	N.T.S.	DRAWING NO.: ©	
APPROVED BY:	MWE	DATE:	11/22/2013	EL618A–SST–3–7	

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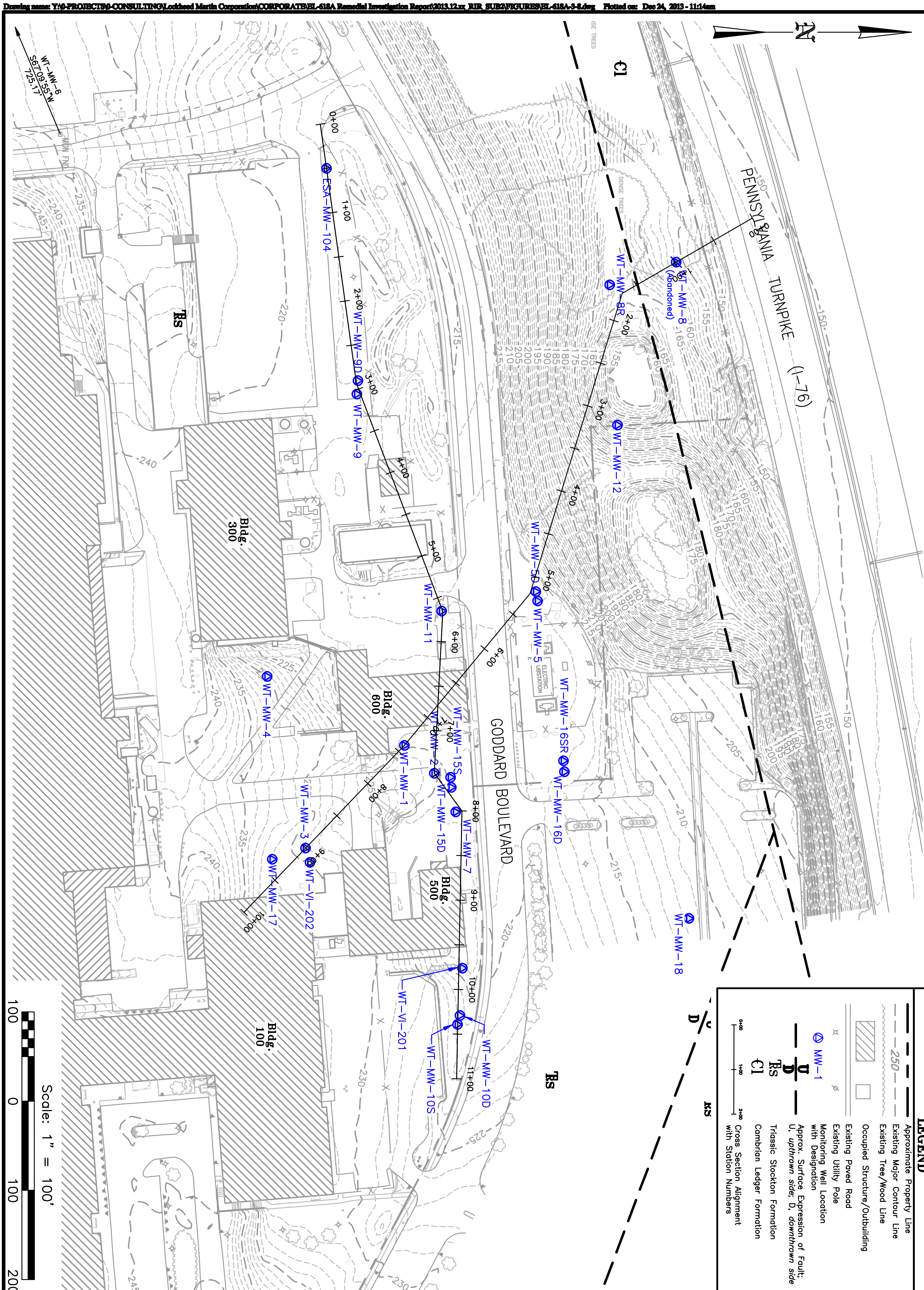
Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\2013.11.22 RIR SUB1\FIGURES\EL618A-SST-3-7.dwg Plotted on: Nov 22, 2013 - 7:20am

Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\2013.12.xx_RIR_SUB2\FIGURES\EL-618A-3-8.dwg Plotted on: Dec 24, 2013 - 11:14am



Notes:

1. Photogrammetric Digital Mapping by Aero-Metric, 45180 Business Court, Dulles, Virginia, 20166-6706. Date of photography August 25, 2009. Grid based on Pennsylvania State Plane Coordinate System South Zone NAD 1983. Vertical datum based on NGS Mean Sea Level.

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FIGURE 3-8
PCE ISOCONCENTRATION CONTOURS CROSS SECTION INDEX MAP

DRAWN BY:	W.M.S.	SCALE:	1" = 100'	DRAWING NO.:	©
APPROVED BY:	M.W.E.	DATE:	12/24/2013	EL-618A-3-8	

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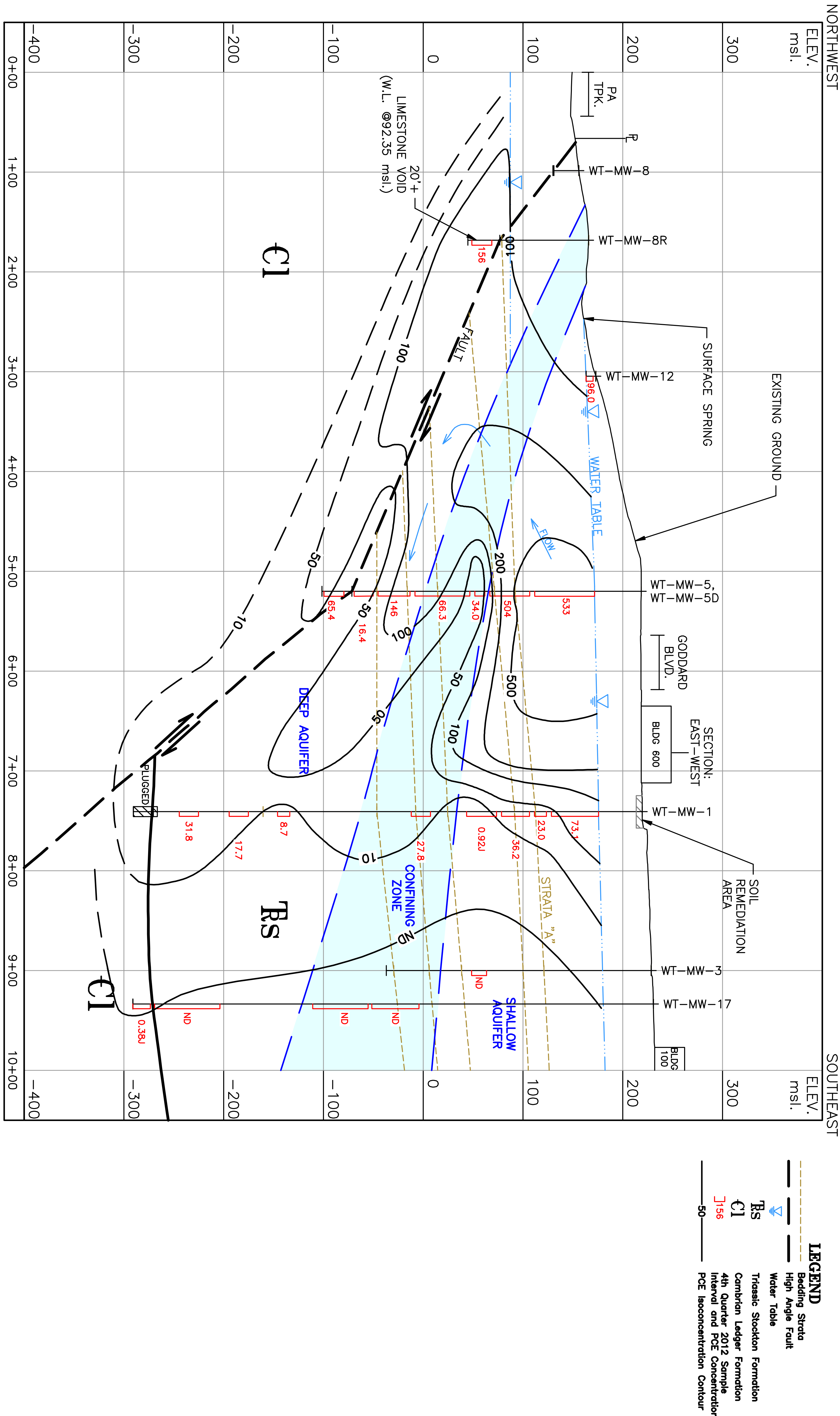
Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\2013.12.xx_RIR_SUB2\FIGURES\EL618-3rd Q 2013.dwg Plotted on: Dec 24, 2013 - 11:12am



SECTION: WT-MW-8 to WT-MW-17
Horizontal Scale: 1" = 100'
Vertical Scale: 1" = 100'

Notes:
1. Existing Ground derived from Photogrammetric Digital Mapping by Aero-Metric, 45180 Business Court, Dulles, Virginia, 20166-6706. Date of photography August 25, 2009. Grid based on Pennsylvania State Plane Coordinate System South Zone NAD 1983. Vertical datum based on NGS Mean Sea Level.
2. Plan derived from *Conceptual Site Model* figure titled "Section: WT-MW-8 TO WT-MW-17, PCE Isoconcentration Contours, Fourth Quarter 2012", dated 01/21/2013, prepared by The H&K Group.

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FIGURE 3-9
SECTION: NORTH-SOUTH
PCE ISOCONCENTRATION CONTOURS
THIRD QUARTER 2013

DRAWN BY: T.J.G.	SCALE: 1" = 100'	DRAWING NO.: ©
APPROVED BY: M.W.E.	DATE: 12/24/2013	EL618-FIG-3.8

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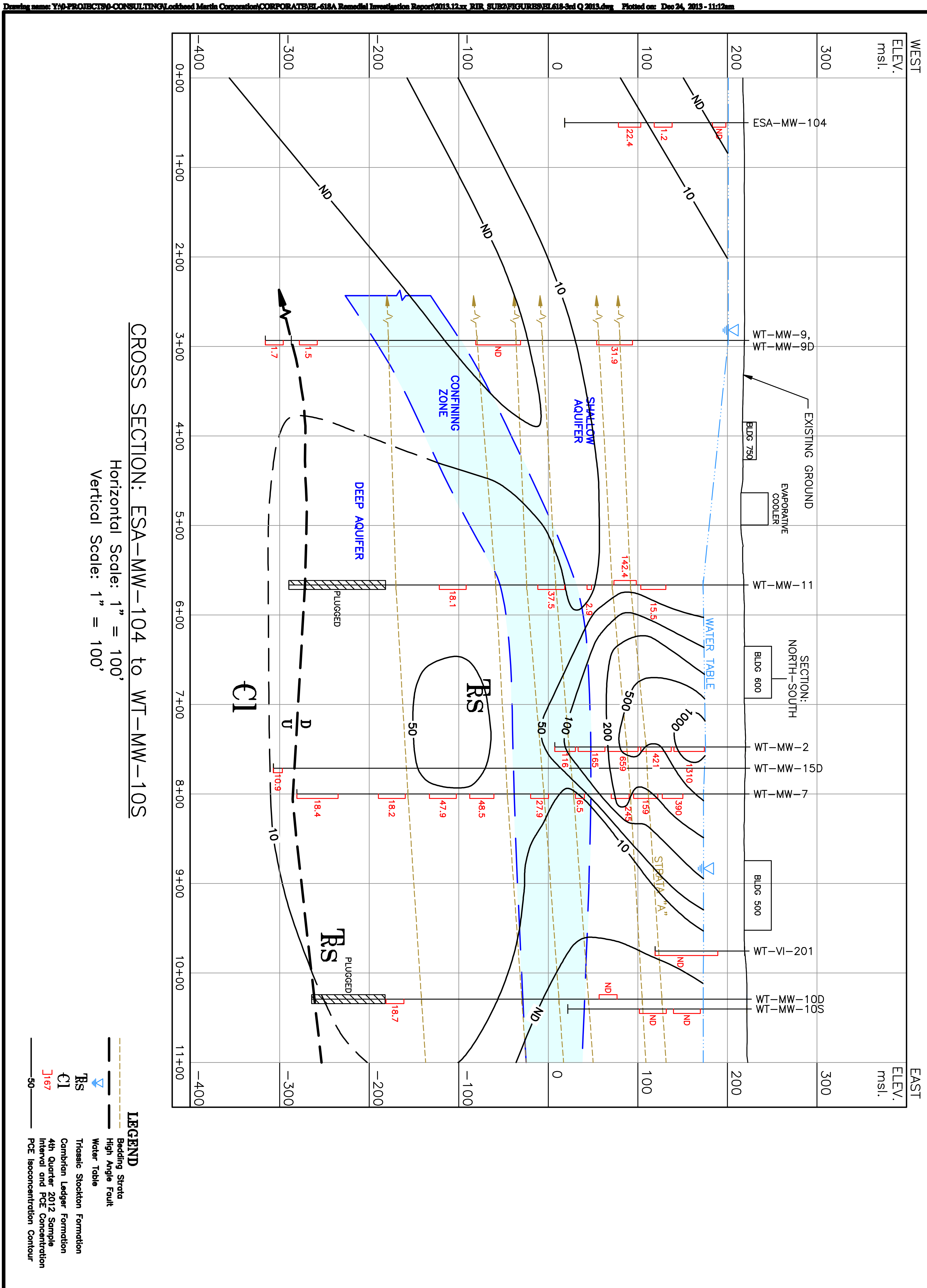
Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\2013.12.xx_RIR_SUB2\FIGURES\EL618-3rd Q 2013.dwg Plotted on: Dec 24, 2013 - 11:12am



Notes:
1. Existing Ground derived from Photogrammetric Digital Mapping by Aero-Metric, 45180 Business Court, Dulles, Virginia, 20166-6706. Date of photography August 25, 2009. Grid based on Pennsylvania State Plane Coordinate System South Zone NAD 1983. Vertical datum based on NGS Mean Sea Level.
2. Plan derived from *Conceptual Site Model* figure titled "Section: ESA-MW-104 TO WT-MW-10S, PCE Isoconcentration Contours, Fourth Quarter 2012", dated 01/21/2013, prepared by The H&K Group.

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FIGURE 3-10
SECTION: EAST-WEST
PCE ISOCONCENTRATION CONTOURS
THIRD QUARTER 2013

DRAWN BY:	T.J.G.	SCALE:	1" = 100'	DRAWING NO.:	©
APPROVED BY:	M.W.E.	DATE:	12/24/2013	EL618-FIG-3.9	

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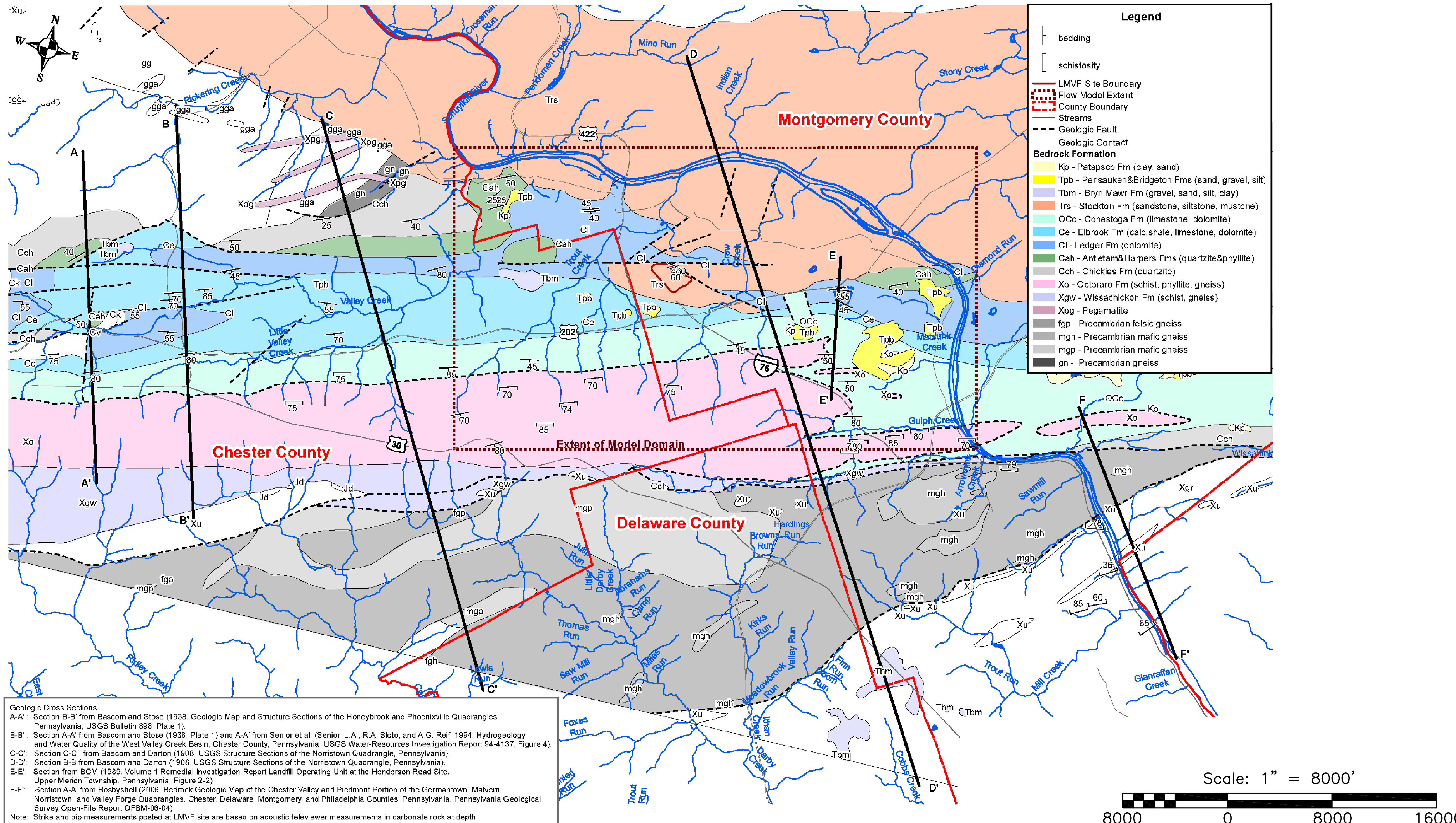

Geologic Cross Sections:

A-A' : Section B-B' from Bascom and Stose (1938, Geologic Map and Structure Sections of the Honeybrook and Phoenixville Quadrangles, Pennsylvania, USGS Bulletin 898, Plate 1).

B-B' : Section A-A' from Bascom and Stose (1938, Plate 1) and A-A' from Senior et al. (Senior, L.A., R.A. Sloto, and A.G. Reif, 1994, Hydrogeology and Water Quality of the West Valley Creek Basin, Chester County, Pennsylvania, USGS Water-Resources Investigation Report 94-4137, Figure 4).

C-C': Section C-C' from Bascom and Darton (1908, USGS Structure Sections of the Norristown Quadrangle, Pennsylvania).

D-D': Section B-B from Bascom and Darton (1908, USGS Structure Sections of the Norristown Quadrangle, Pennsylvania).

E-E': Section from BCM (1989, Volume 1 Remedial Investigation Report Landfill Operating Unit at the Henderson Road Site, Upper Merion Township, Pennsylvania, Figure 2-2).

F-F': Section A-A' from Bosbyshell (2006, Bedrock Geologic Map of the Chester Valley and Piedmont Portion of the Germantown, Malvern, Norristown, and Valley Forge Quadrangles, Chester, Delaware, Montgomery, and Philadelphia Counties, Pennsylvania, Pennsylvania Geological Survey Open-File Report OFBM-06-04).

Note: Strike and dip measurements posted at LMVF site are based on acoustic televiewer measurements in carbonate rock at depth. Geology mapping was downloaded from PA DCNR digital base map files in 2013.

Notes:
1. This plan is derived from the *Groundwater Modeling Report* figure titled "Geologic Map Showing Model Area with Strike and Dip Values and Section Locations", dated 06/19/2013, prepared by Tetra Tech, Inc.

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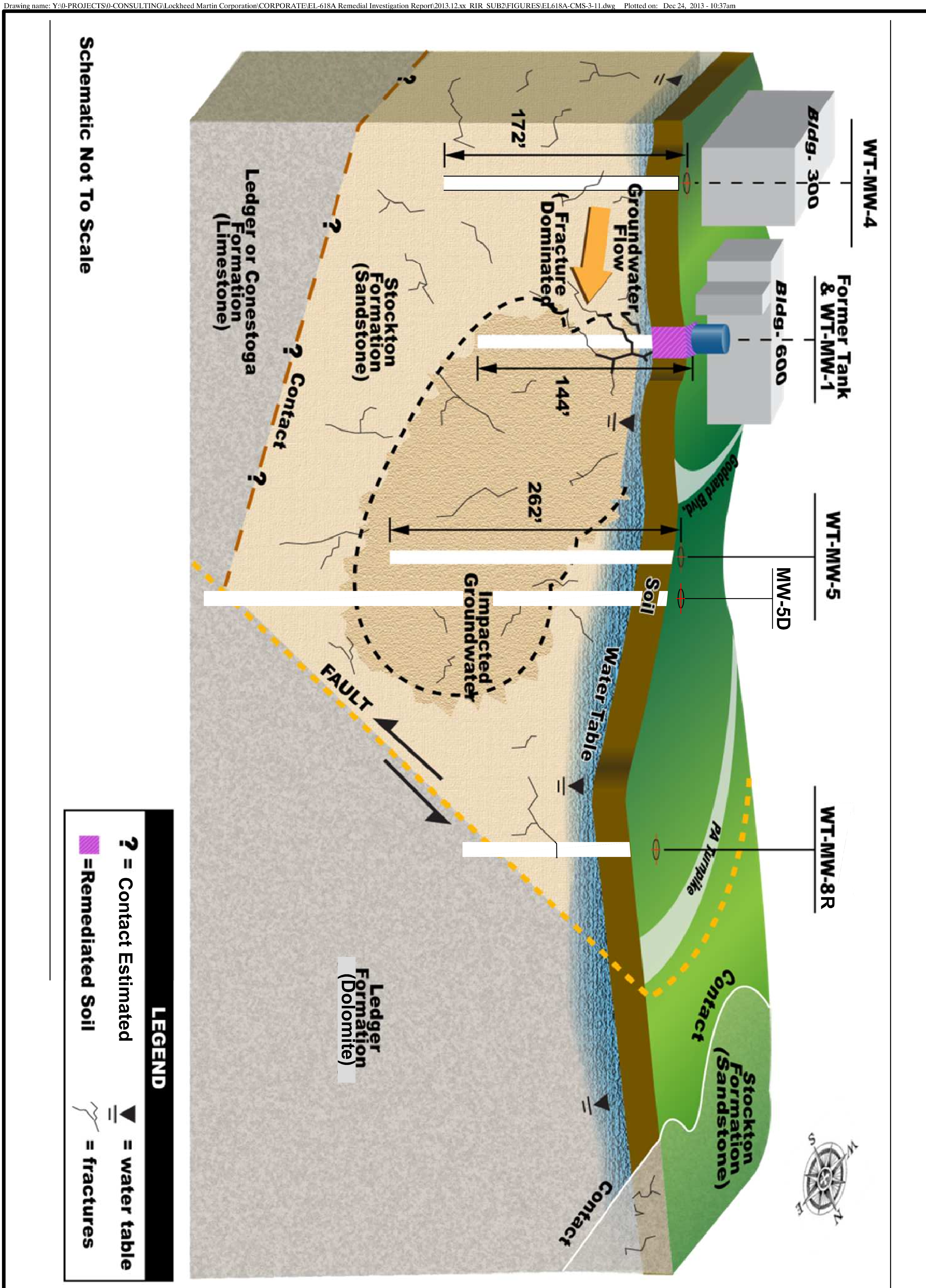
FIGURE 3-11
MODEL DOMAIN

DRAWN BY: SKB	DATE: 12/24/2013	DRAWING NO. ©
CHECKED & APPROVED BY: MWE		EL618A-MDM-3-11

Drawing name: Y:\0-PROJECTS\0-CONSULTING\Lockheed Martin Corporation\CORPORATE\EL-618A Remedial Investigation Report\2013.12.xx RIR SUB2\FIGURES\EL618A-CMS-3-11.dwg Plotted on: Dec 24, 2013 - 10:37am



Notes:
1. Derived from the *Quarterly Groundwater Monitoring Report, Third Quarter 2013*, "Figure 2.2 – Site Features Map", dated 09/18/2013, prepared by The H&K Group.

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FIGURE 4–1
CONCEPTUAL MODEL SCHEMATIC

DRAWN BY: S.K.B.	SCALE: AS SHOWN	DRAWING NO.: ©
APPROVED BY: M.W.E.	DATE: 12/24/2013	EL618A–CMS–3–11

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